

COAL AGE

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A Little Speed, Gentlemen

A SORE SPOT in the relation between the anthracite operators and the retail distributors has been the manner in which spring changes in prices have been announced in recent years. In 1924, for example, some of the larger shippers withheld information until the day the new prices became effective. The retailers argue, not without force, that such a policy of procrastination and secrecy, puts them at a real disadvantage. Kept in the dark until the last moment, they can neither give intelligent buying advice to their customers nor plan a buying campaign of their own with any feeling that they are acting wisely. Careful planning and sound merchandising methods must be thrown on the scrap heap for rush-hour helter-skelter selling and buying.

In defense of this system of price publication the excuse is sometimes made that earlier announcement of quotations for the coal year would have a bad effect upon buying during the closing weeks of the dying season. In view of the fact that March buying is upon a hand-to-mouth basis that excuse hardly holds water. Retailer and consumer both buy only at the dictates of necessity when the coal year is waning, and knowledge of what the price would be April 1 would not modify or change those dictates. However, a little speed in making known the bases for the new year would be further convincing evidence of the new spirit of co-operation in the anthracite industry and would help the anthracite industry to obtain an immediate and effective result from any reduction in price it might provide. How can the retailer prepare his circulars if he does not know the arguments on which his sales must be based? He must wait until he learns what the operator's policies and prices will be.

Wanted: Agile Not Inert Dust

HOW FATALLY are we trapped by words! Nearly all authorities in describing the material used to suppress coal-dust explosions use the word "inert dust," meaning dust that is incombustible and will not communicate combustion, but the word seems likely to be misapplied and to suggest that all we need is to keep the dust in any part of a mine immobile and where it cannot contribute to explosion and all will be well. But that is not at all true. A coal-dust explosion can proceed through a wet and dustless zone, feeding on the coal dust it carries with it, but if there is sufficient agile non-combustible dust that will rise and battle with the flame it will be extinguished. What we want is agile not immobile dust.

It is not undesirable to have coal dust held down by water, salt, calcium chloride, an oil emulsion or an oil, but better yet it is to have rock dust free to rise and battle with the flames. Coal dust is like rubbish, which in a blazing house will assist the fire. If, however, the flame is licking up through the dwelling it will burn

whether rubbish is present or not. It would be a less dangerous fire if the rubbish were absent, but the effect of its absence would be one of degree rather than of kind. So also with a dust caked by moisture, salt, soap or oil, it may be incapable of doing harm like a dead watch dog but not capable of any effective service.

The rock dust that flies is active for good, not merely incapable of harm. However, as all flames are extinguished if not fed and so have a certain definite radius of action the complete inertness of the dust over a long length of gallery might possibly cause such an attenuation of the combustible matter propelled by the explosion that the flame would after a while have nothing further on which to feed. This presupposes that the flame in its path finds no material for combustion, but that is hardly likely to be entirely true. It is better to get rid by a battling dust of what flame there is than to rely on the entire absence of any dangerous dust in the path of the explosion.

Will This Please Mr. Lewis?

FAST ON the annual report to its stockholders that the Pittsburgh Coal Co. sustained "substantial losses" in the operation of its mines in 1924 while it was purchasing non-union coal for its dock subsidiaries at prices a dollar below production costs at its own collieries, comes news that the company has set about to dismantle and abandon sixteen of its fifty odd mines in the Pittsburgh district.

Two years ago every mine in the region was working to the limit of available car supply; a year ago the Jacksonville agreement was forced on the operators; now sixteen mines are permanently closed, the union miners and their families surrounding them forever cut off from work at those plants. The coal company writes off the value of these mines and saves probably not less than \$100 per day per mine—the cost of maintaining a coal mine in idleness—or nearly \$700,000 a year.

This is heroic treatment. It is positive answer to the United Mine Workers and to Mr. Hoover of what the Jacksonville agreement means to the union fields. It is furthermore good business judgment on the part of the company. The history of the soft-coal fields—like the ancient history of the anthracite region—has been a story of profits that accrued in the too infrequent boom periods being dissipated in carrying idle mines over long slack summers. Here is a company strong enough and with sufficient courage to write off a doubtful asset—rendered doubtful in this instance by the stubbornness of mine labor—and to deflate its capacity, at the same time initiating a policy of building on the ashes of the old a new production machine calculated to take on the load when eventually conditions are righted.

John Lewis has repeatedly said that the Jacksonville scale was designed to deflate the coal industry, and this news of sixteen mines in a lump cut off from the over-

supply will doubtless gladden his heart, because he is blind to the fact that before these sixteen union mines were abandoned there had been built and put in operation, somewhere in the non-union field, sixteen other mines, where his cohorts are drifting to work at the lower wage that they scorned to accept while working in the northern fields.

New Lamps for Old

ONE'S MIND naturally wanders back to the Arabian Nights, if not to Aladdin, when one thinks of Wall St. and its great powers of accomplishment. The pillars of finance that have interested themselves in steel, copper, railroads, public utilities and anthracite are now contemplating and actually investing in bituminous coal.

Many changes will come as a result. There will be a more general publication of production costs and profits. There will be less hit and miss financing, more reserves; large sums will be written down for depreciation, obsolescence and misadventure. Technically trained men will be more in demand. Construction will be more permanent. More attention will be given to public opinion, for to shock the public is to destroy credit. Above all there will be more capital for modernization.

There will be, moreover, more consumer ownership and if the business of producing coal can be stabilized, stock will be sold in larger quantities to employees. This will make for a better understanding by the public. As many people we are told own American Telegraph & Telephone stock as there are people in the city of Boston. Reckoning in families the statement could be modified so as to be even more startling. When coal is similarly owned the mouths of the demagogues will be in a degree stopped, for men do not discuss unfairly the enterprises in which they are greatly interested.

At Last We Have a Recognized Standard

IN ITS July, 1923, report on the anthracite industry, the United States Coal Commission suggested that the hard-coal producers join in an intercompany inspection service "empowered to prescribe standards, inspect and sample shipments, reject inferior coal, and certify, if not guarantee, the quality of the coal passed." The operators chose to reject the proposal without explaining the reasons for their action. An opportunity to enhance the industry in the eyes of the public was dismissed with at least an outward show of cavalier indifference.

This bit of recent, but generally forgotten, history is recalled because the contrast between what happened—or didn't happen—to the Coal Commission's recommendation and the proposals on standardization which now seem to have the support of the majority of the hard-coal producers is in itself most striking proof of the big step forward which the industry has taken. The desirability of uniformity from a public standpoint is hardly open to argument, but the path to agreement on specific standards has not been an easy one. Sacrifice and compromise are the foundations upon which the new specifications have been built. Producers whose coal is more friable than that of others and who are doing more second mining than some others will have to consent to increasing their output of small sizes marketed as such. Loading down chestnut with 30 per

cent pea will not pass under the new specifications. In a measure, too, the operators more favored by nature and virgin mining lose some of their advantage even if actual shipping standards more strict than the new specifications are maintained.

The actual details of the specifications, which will in all probability receive the seal of formal approval at Philadelphia today, are far less important than the genesis of the present movement. That, in turn, is secondary to the outstanding fact that, for the first time in the history of the present generation at least, the buyer is given definite, uniform standards by which the sizing and preparation of the coal may be judged.

Inasmuch as many producers have heretofore considered their own standards of preparation and sizing so sacred that they have declined to make them a matter of record and others have frankly admitted that the standards varied, not only as between different mines, but as demand shifted, it is difficult to overestimate the advance made in the present proposals to establish uniform testing standards that will apply, not at the mines, but to the coal as it is received at the yard of the retailer.

As time goes on, experience may suggest the wisdom of making changes in the details without in any way impairing the integrity of the fundamental principle of uniformity. Further development of the market for pea and No. 1 buckwheat may so relieve the pressure on those sizes that the producers will be quite willing to agree to a smaller maximum percentage of undersize than that set up by the present standards. But, notwithstanding the fact that these standards allow the producer considerable leeway in the matter of undersize, they will go a long way toward establishing a more uniformly standard product. That means that the field in which the most common consumer complaint—"my last load wasn't like the one before"—will be valid will be considerably narrowed.

The adoption of the new standards means the definite shelving of the proposal urged a few years ago and pressed with renewed vigor during the conferences of this coal season that pea coal be eliminated. Although there are a number of strong supporters of this scheme, which involves putting the standard size pea into the chestnut and selling the combined product as range and putting the undersize into the buckwheat, it is extremely doubtful whether such a resizing program would meet with general consumer approbation. There have been enough complaints against excessive percentages of small coal in chestnut as it is. Neither the producer nor the retail distributor can afford to further antagonize the domestic consumer.

Those who have labored to bring about agreement upon a program of uniformity have labored well. By adopting such a program the anthracite industry takes a long step forward and shows that it is not unmindful of the public interest.

Capital and the public hate turmoil. The coal industry may not be to blame for its disorder but it suffers in public repute nevertheless. Let it say nothing about its domestic discord lest someone suggest that the blame is probably partly its own. A little dignity in the conduct of its affairs will be convincing to the investing public and to the voter, but dignity, of course, means neither secrecy nor discourtesy. With industry as with a family, silence with regard to black sheep is well.

Mergers in Bituminous Coal Fields in 1924 Include Only 30,000,000 Tons Output

Despite Much Talk and Prophecy Soft Coal Industry Produces but 15 Important Consolidations—Most of These Are in Non-Union States—West Virginia, Kentucky and Alabama Total 16,900,000 Tons

CONSOLIDATIONS in the bituminous fields of this country during 1924 hardly came up to the expectations of keen observers. But there were a number of important mergers—probably fifteen in all, covering a total potential productive power of 26,500,000 tons. This does not take into consideration a handful of unimportant groupings effected in various parts of the country.

It is interesting to note that most of these mergers took place in non-union territory, which might be taken to indicate that in a year—such as 1924—when margins are narrow and most fields are struggling through hard times, it is easier to effect consolidations in territory where the prosperity factor is greatest. In spite of much high, wide and handsome conversation in several union fields, especially in Indiana, where consolidation has been the favorite theme for months, no real consolidations were effected in any union state except Illinois. There the merger of the Taylor Coal Co. and two mining properties held by the Bickett Coal & Coke Co. represented about all the consolidation there was, although the absorption of the Harco mine of the Harrisburgh Colliery Co. by Big Creek Coals, Inc., might also be put into the merger classification.

Considering these two groupings, Illinois tonnage consolidated to the extent of about 7,000,000 tons annual potential production. Kansas shows one merger of 300,000 tons. Three Pennsylvania consolidations, part of them in non-union territory, put about 2,300,000 tons under the three controls. The consolidated total in West Virginia is 6,600,000 tons; in Kentucky, 4,900,000 tons, and Alabama, 5,400,000 tons.

TWO BIG ILLINOIS CONSOLIDATIONS

The first consolidation of 1924 was consummated on Jan. 1, when the Taylor Coal Co., of Chicago, operating southern Illinois mines, acquired the Bickett Coal & Coke Co., taking over the Franklin Coal & Coke Co. mines at Royalton, Ill., and the property of the Chicago & Sandoval Coal Co. at Centralia, Ill. The merger covered properties whose total potential output is 15,000 tons a day. H. H. Taylor remained president of the Taylor Coal Co. and C. A. Bickett, former president of the Bickett Coal & Coke Co., became a director. Later the name of the company was changed to the Franklin County Coal Co. An issue of \$2,750,000 first mortgage 7 per cent bonds was sold.

In May, 1924, Big Creek Coals, Inc., of Chicago, with a group of Saline County (Illinois) mines, bought the Harco mine of the Harrisburgh Colliery Co., a desirable 4,000-ton mine which is outstanding among the properties of Saline County, Illinois, and thus absorbed the entire Harrisburgh Colliery Co. The Saline County Coal Corporation is the name of the consolidated companies, headed by Charles I. Pierce, former president of Big Creek Coals, Inc. A \$2,500,000 issue of 6½-per cent 20-year bonds was made.

At the beginning of 1924 the properties of the Pitts-

burgh Coal Co. in Ohio and those of the Great Lakes Coal Co., a Peter Reiss company, were merged, forming the New Pittsburgh Coal Co., of Columbus, Ohio, which has a capital stock of \$2,100,000. G. C. Weitzell became president and J. A. Rundio sales manager. The mines operated by the new company lie in the Pomeroy Bend field and in the Hocking Valley in eastern Ohio, on the Hocking Valley and the Wheeling & Lake Erie



C. F. Richardson

President of the West Kentucky Coal Co., which absorbed the St. Bernard Mining Co. and the Kentucky Block Coal Co. The total price paid is said to have been nearly \$5,000,000.

railroads, and in Kentucky, where the big Betsy Layne mine is the outstanding operation.

A consolidation was effected early in the year combining the properties of the Midland Coal Co. and the Jackson-Walker Coal Co. under the name of the Midland Coal Co. The mines are principally in Kansas. H. G. Kellogg, C. P. A. Clough and C. H. Markham are the moving spirits in the company.

BINDING UP WEST KENTUCKY

The biggest Midwestern merger of the year was the absorption of the St. Bernard Mining Co., of Earlington, in western Kentucky, with its nine shaft mines, four strip pits and 44,000 acres of mineral rights and the Kentucky Block Coal Co., with one mine, by the West Kentucky Coal Co., of Sturgis, Ky., a property of the North American Co. The purchase included a million-dollar power plant of the St. Bernard company at Earlington. The total price paid by the North American Co. was announced as \$4,900,000. The enlarged West Kentucky Coal Co. thereupon floated a \$5,000,000 issue of first mortgage 7 per cent sinking-fund gold bonds. C. F. Richardson, head of the West Kentucky Coal Co., remains as president of the merged companies although much of the identity and practically all of the official personnel of the St. Bernard Mining Co. is retained in the organization, including President

F. D. Rash, who has operated the St. Bernard mines for a long time.

A western Kentucky stripping consolidation with a capital of \$2,000,000 was formed by Birmingham (Ala.), Memphis (Tenn.) and Kentucky people under the name of the Great Western Coal Co. (no relation to the company of that name now opening property in Utah). The properties in the merger are those of the Hawley-McIsaac Co., Inc., Western Coal Co., Gideon Coal Co., Morris Coal Co. and Kershaw Coal Co. These strip pits are in Ohio County, Kentucky, on the L. & N. R.R. and in Hopkins County, Kentucky, on the Illinois Central R.R. The company is capable of producing nearly 1,000,000 tons of coal annually. An issue of \$800,000 bonds was sold to the Atlantic Exchange Bank & Trust Co., of Baltimore, Md.

BETSY LAYNE FIELD INCORPORATION

The Peerless Elkhorn Coal Co., owned by Hatton, Brown & Co., of Columbus, Ohio, during the middle of the summer acquired two one-mine companies operating in the Betsy Layne field of eastern Kentucky on the Chesapeake & Ohio R.R. The two absorbed companies were the St. Paul Coal Co. and the Big Elkhorn Coal Co., the combined output of which was approximately 500 tons a day. This potential production has been increased.

In May the Fleischmann interests of Cincinnati merged the Kentucky and West Virginia mines of the Reliance Coal & Coke Co. and the Hatfield Coal Co., including the E. J. Hickett Transportation Co., Plymouth Coal & Mining Co., Inc.; West Virginia Washed Coal Co. and the Licking Valley Coal Digger Co. The combined companies took the name Hatfield-Reliance Co. It owns 6,444 acres of coal land and leases 5,513 acres more in West Virginia and eastern Kentucky. The entire holdings of the company are said to be carried on the company's books at a capital value of \$2,532,368. J. T. Hatfield has succeeded the late Julius Fleischmann as president of this company.

SIXTY MINES IN ONE COMPANY

One of the biggest consolidations of the year took place during the summer. It involved the West Virginia Coal & Coke Co., the Hutchinson Coal Co. and the Main Island Creek Coal Co., which, together with the Logan Mining Co., the Empire Coal Co. and the Rich Creek Coal Mining Co., were combined into the biggest coal-producing unit in West Virginia with 60 mines capable of producing 6,000,000 tons of coal annually. These properties are in Logan and Kanawha counties. The Dalton-Kelly interests, of Huntington, W. Va., which had controlled the Main Island Creek string of twenty-one mines, sold outright to the Hutchinson interests, which control the West Virginia Coal & Coke Co.

The Wilbur Fuel Co. is the name of another northern West Virginia consolidation of 1924. It was formed by the merging of the Eastern Utilities Coal Co., of Lost Creek, W. Va., which operated the Righter mine, with a 1923 output of 144,000 tons, with the Champion Collieries Co.

On July 1 was reported the absorption by the Hillman Coal & Coke Co. of five other operating companies, but the fact is that the five had been acquired from time to time during a long period before that. The five, which are now operated under the name of the parent company, are the Diamond Coal & Coke Co., Merchants Coal Corporation, Jenner-Quemahoning Coal Co., Pitts-

burgh & Baltimore Coal Co. and the Naomi Coal Co.

Another merger was that of the Meadowlands Coal Co. with the Pittsburgh Terminal Coal Co., with C. E. Tuttle as the new president of the two, under the name of the Pittsburgh Terminal Coal Corporation. The Meadowlands Coal Co. owned and operated two mines in Washington County in the Pittsburgh seam and the Pittsburgh Terminal Coal Co.'s mines number six, also in the Pittsburgh seam. The total tonnage of the combination approximates 5,000,000 tons annually.

ALABAMA IN NO WAY BEHIND

Three consolidations were effected in Alabama during the year. One was the absorption of the Alabama Company, with three coal mines at Lewisburg, Searles and Coalwood, capable of producing 1,000,000 tons of coal a year. This company's property, including ore mines and a small railroad, was taken over by the Sloss-Sheffield Steel & Iron Co., whose coal holdings already totaled approximately 1,000,000 tons of production annually. The reported price of the sale was \$4,000,000, the Sloss-Sheffield company assuming certain obligations of the other concern.

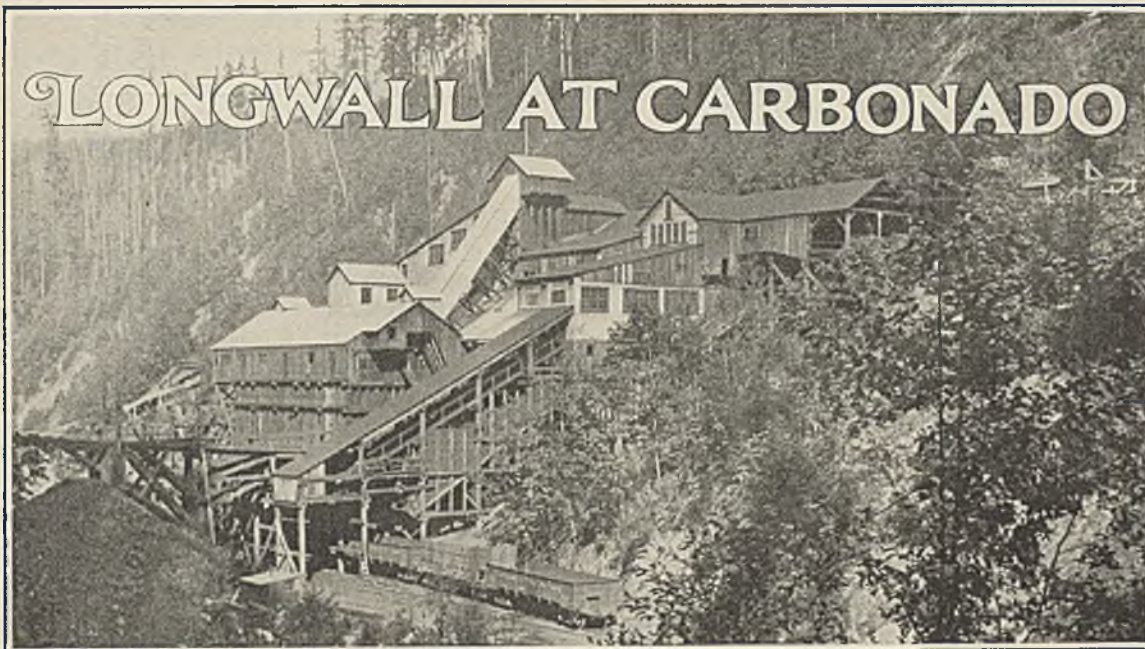
A second was the important \$6,000,000 merger of the Pratt Consolidated Coal Co. with the Alabama By-Products Co., of which Morris Bush was president. This grouping puts under the control of the Alabama By-Products Co. 110,000 acres of coal lands and mines now developed to produce about 2,500,000 tons a year. Mr. Bush continues as president. Pratt Consolidated men are well represented in the official personnel of the company, however. G. B. McCormack is chairman of the board of directors and Erskine Ramsay and Carr McCormack are members of the board.

The third combine of the year put into the hands of the Pratt Fuel Corporation control of the Burnwell Coal Mining Co., formerly operated by S. L. Yerkes and the Nelson Coal Corporation. The Burnwell concern had operated the Samoset slope mine at Doro, producing about 75,000 tons a year, and the Yerkwood mine, near by, developed to produce about 90,000 tons a year. Mr. Yerkes became a director of the Pratt Fuel Corporation. The Nelson Coal Corporation turned in its one mine, the Red Star, the 1923 output of which was 60,000 tons, and about 1,200 acres of land. Thus mines, all in Walker County, capable of producing about 900,000 tons annually were consolidated. The Pratt Fuel Corporation's capital stock was increased from \$750,000 to \$1,000,000.



Big Villages Require Artificial Lakes

Some years back the H. C. Frick Coke Co. formed the Mt. Pleasant Water Co. to provide, near Stauffer, Pa., a large reservoir with which to supply the employees of the coke company with pure water.



Mine of Carbon Hill Coal Co., Working Steeply Pitching Coal, Finds Modified Longwall with Stepped Faces Paralleling Pitch Increases Tonnage per Man, Saves Timbers and Eliminates Waste of Coal

By S. H. Ash
Superintendent, Pacific Coast Coal Co.,
Carbonado, Wash.

CONTRARY to the general practice in the Pierce County fields, where chute-and-pillar or room-and-pillar are the usual methods of working, the Carbon Hill Coal Co. has, under the direction of L. F. Menzies, instituted a system of longwall which after long trial has been found to be better suited to the conditions than the room-and-pillar method that preceded it.

The mines of this company, located at Carbonado, Pierce County, Washington, on the Northern Pacific Ry., fifty-three miles from Seattle, are typical of the district. The mines, because of folding and faulting and the topographic and physical conditions of the seams and walls, present many interesting and complex features of operation. All angles of dip are found and the methods of working the seams vary accordingly. On this property will be found all seams of major importance that have been developed in the district.

The Carbonado mines have been the largest producers in the field, their total output to date having been over 7,500,000 short tons. Normally, they produce about 1,000 tons per day. The product of the mines is a high-grade bituminous coal ranking with the best in the northwest.

All the Carbonado mines have been opened as water levels starting about high-water in the Carbon River canyon. This canyon, in places, is 50 to 80 ft. wide and near the openings is about 400 ft. deep. The river has

cut through the sedimentary rocks and exposed the beds.

Twelve workable coal seams appear in this series, first identified by Doctor Willis as a continuation of the series at Wilkeson, Burnett, and Spiketon. The tops of the seams have been eroded, and the outcrops are usually covered with gravel. Because of the available coal above water level, only two seams, No. 12 (the Miller) and No. 11 (the Wingate), have been worked to any extent below water level. All the Carbonado seams that have been worked are shown in Fig. 2.

WILLIS FAULT CROSSES PROPERTY

The structure of the Carbon Hill Coal Co.'s property is divided by the Willis fault into two distinct parts. North of the fault, the structure is one of intense folding and thrust faulting; south of the fault there is only a monoclinical dip to the west. In this section, the whole series appears and is disturbed only by the Miller fault and a small fold in the southwest.

Dikes and sills of igneous rock have been intruded into the measures in sections 9 and 16. Bed No. 8 has been entirely burned out by small sills and dikes. The presence of anthracite coal in south No. 3 seam, the equivalent of Big Ben, is due to the intrusion of a large sill into the measures below.

The methods of working seams No. 6 and No. 12 (the Miller) at Carbonado were changed to a modified longwall method in preference to the breast-and-pillar and chute-and-pillar methods adopted by the other mines.

I had occasion, in 1916, to note the successful operation of the longwall method as applied to a short lift in seam No. 6, and to seam No. 12 during a period of two years, when the level on which the system was being operated was worked out. Several attempts were

NOTE—Second part of article entitled "Systems of Coal Mining in Western Washington presented at the Winter Meeting of the American Institute of Mining and Metallurgical Engineers, held Feb. 16-19 in New York City. This paper was written as a thesis for presentation at the College of Mines, University of Washington in 1924. The previous installment appeared in *Coal Age*, issue of Feb. 19 and was entitled "Room-and-Pillar in Steeply Pitching Beds of Pierce County, Washington."

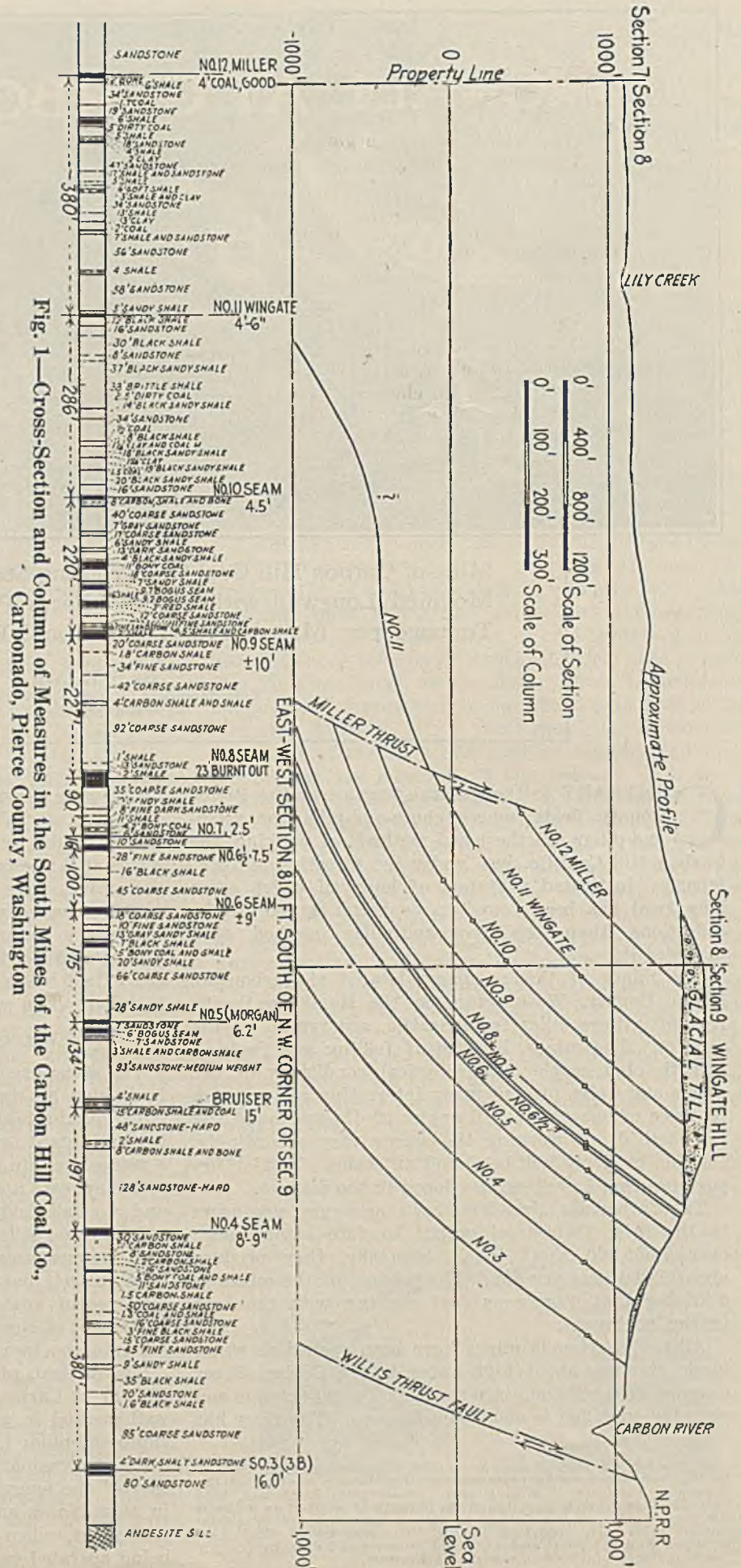
made to work seam No. 12 by the breast-and-pillar and chute-and-pillar methods, but they failed because the roof could not be maintained. Under J. F. Menzies, a successful longwall method was developed.

The coal of the Miller bed, shown in Fig. 3, is from 4 to 4½ ft. thick and is used as a domestic and steam fuel. The seam is reached by a rock tunnel 600 ft. long from the Wingate slope on the second level. Because of the impossibility of profitably working the seam by breasts or chutes, little has been done on the seam compared to that done on the other beds, and the second is the lowest level worked. The dip here decreases south from the rock tunnel to the slope, the coal having an average dip of about 38 deg., which is a little too flat for the best results.

The level worked at the time was originally opened for chutes and pillars, consequently the practice adopted was not the same as will be used in its future development. The gangway, which is the intake airway, was driven in the coal and timbered by three-piece sets consisting of 9-ft. legs, 8-ft. collars, with lagging between sets.

The air travels from the gangway to the longwall face, through a counter gangway, 4x4 ft., driven parallel to the main gangway and about 25 ft. up the pitch from it. The air then circulates up the longwall face to the old gangway above. It was practically impossible to keep this gangway open as a return airway, so a rock tunnel was driven in the footwall parallel to the top gangway and about 20 ft. from it, as shown in Fig. 5. This tunnel is 7x6 ft. and was driven for \$19 per yd., which would be about the same rate paid at this time for such a tunnel. Crosscuts, 4x4 ft., are driven from the tunnel to the top gangway, at intervals no greater than 50 ft., to tap the longwall face, the distance between them depending on the condition of the latter.

This tunnel is the return airway for the longwall face, and timber, as required, is brought through it and taken down the longwall face by timber packers. The first cost of driving the top tunnel is slightly higher than driving in the coal, but when the cost of retimbering, the general upkeep and the value of a reliable and permanent airway and escapeway are considered, the



tunnel is the cheaper. Chutes connecting the gangway and counter are driven up the pitch 25 ft. apart, as shown in Fig. 5.

The method of opening the longwall face, shown in Fig. 5, was as follows: The first two chutes were driven narrow up the pitch from the gangway with a 12-ft. pillar intervening. The crosscuts above the counter gangway were driven about 4x4 ft. with a 50-ft. block between them. As soon as the chutes were up one block, the longwall face was begun, there being room for one miner, who started in chute 2 and drove angle *a* to meet angle *b*, which was simultaneously driven by the counter miner before he proceeded with the counter gangway.

Skip, or slice *a*, about 6 ft. wide, was then continued up the pitch, its faces (*a*², *a*³, *a*⁴, *a*⁵) being at all times about 18 ft. behind the face in chute 2. When skip *a* was up about 18 ft. from the point of the angle, skip *b* was started and continued up the pitch. This sequence was repeated on the skips following. When skip *a* reached point *a*⁵, the face was as shown by the heavy line *a*⁵, *b*¹, *c*², *d*³, *e*⁴. A miner then proceeded to drive an angle from chute 3, to tap angle 4, and the longwall proceeded.

Before chutes 1 and 2 tapped the gangway above and before the rock crosscut was driven from the rock tunnel at top of chute 1, the air traveled up the last crosscut from the gangway to the counter gangway, back along the counter gangway to the longwall face

and then down chute 1 to the counter gangway, through which it returned to the return airway and to the fan.

The usual practice in this field, when the gangways are driven as water levels or have a gangway above to be used as an aircourse, is to drive but one rock tunnel connecting the seams and then drive a chute, or pair of chutes, through to the surface or to the gangway above for a permanent airway. Until this is done, a brattice, flexoid tubing, sollar, or air box is carried in the rock tunnel, making two compartments for the purpose of ventilation. Often this is connected to the main counter gangway, or airway, but more often a small booster fan is used which is efficient even for long distances when flexoid tubing is used.

Outside the longwall face in chute 2, no attempt is made to keep this chute open after angle chute 3 is tapped by the longwall face. The chutes 1 and 2 are driven with a small pillar between them in order that they may be rushed, and there is little possibility of profitably recovering the pillar separating them.

The longwall face developed is shown in Fig. 5. The miners each took a 6-ft. skip, keeping about 18 ft. apart and driving through to the top counter gangway or level. As soon as the skip was finished, the miner dropped back to the bottom of the longwall face and started another 6-ft. skip. The longwall face, in Fig. 5, was about 500 ft. long, 30 miners were working upon it, and the output was about 250 short tons per shift of 8 hr. The longwall face, counter gangway and chutes

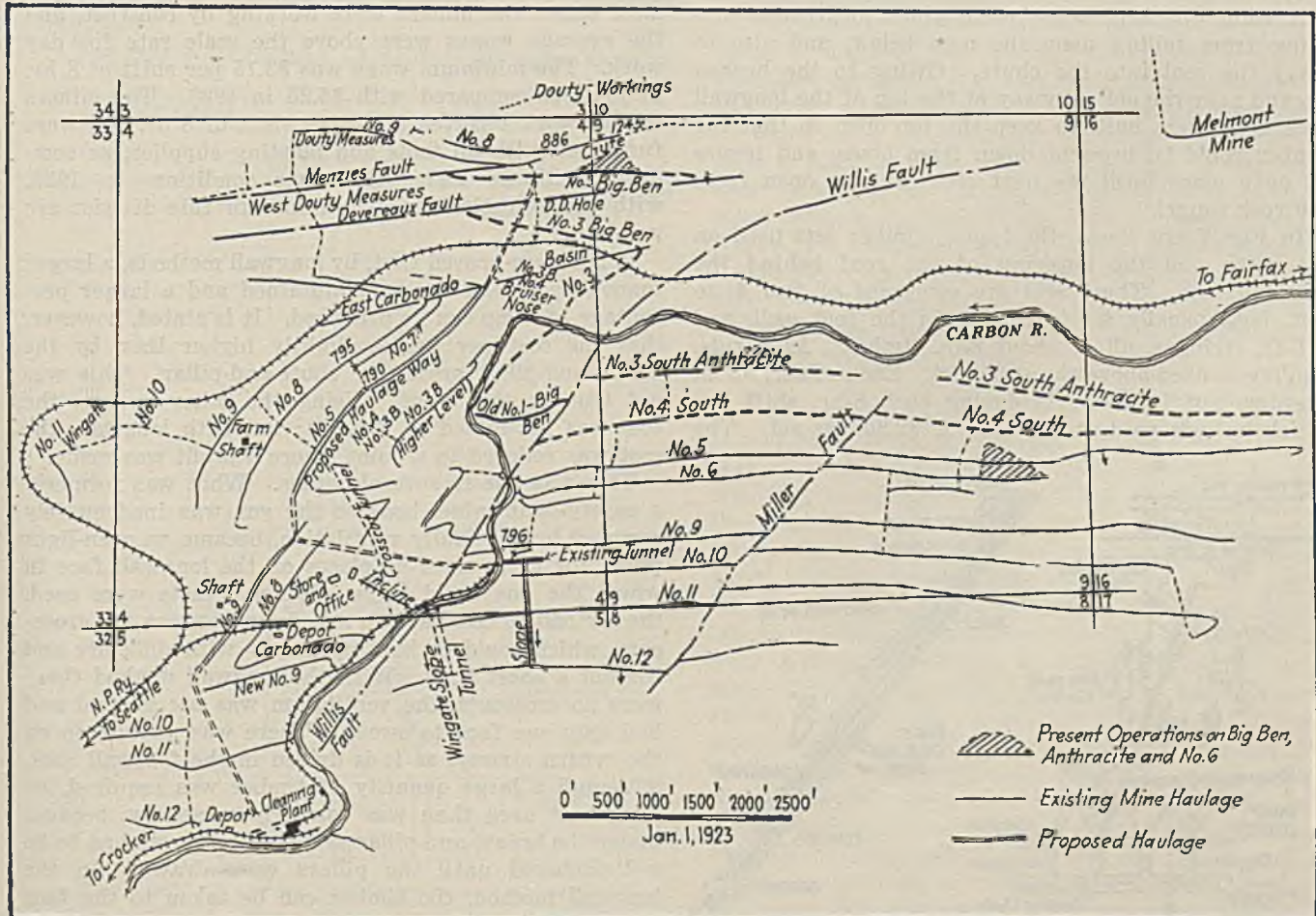


Fig. 2—Water-level Workings of Carbon Hill Coal Co., Showing Willis, Miller and Other Faults

This map shows how complicated is the geological status north of the Willis fault and how relatively simple is that status south of the fault, that is, to the right of the map. The section in Fig. 1 is taken apparently on a line parallel to, and not far from, the

boundary between Sections 4 and 9 or what is the same, 5 and 8. Small sills and dikes have burned out Bed No. 8. A large sill in the measures below No. 3, the equivalent of Big Ben, has converted the coal in that seam to anthracite.

were worked but one shift, the gangway being operated double-shift.

A sheet-iron chute was used to carry the coal from the men to the gangway. This was kept full, and batteries were placed at intervals where necessary to keep the coal from rushing. Four buckers were employed to keep the chute in shape and run the coal. This chute was moved to the longwall face once each week, when the longwall face was not working.

The longwall face advanced in by from 18 to 24 ft. each week, so that the chute ordinarily was never more than 24 ft. from the face. When the chute was moved to the longwall face, a center post was set under each stringer of the sets outby and next to the chute; these strengthened these sets and protected the chute. The sets outby, and next to the strengthened sets, were knocked out, so that the weight was taken off the faces, and the roof was allowed to sag and cave behind, as shown in Fig. 7.

A wing was kept below each miner to prevent anything from falling upon the man below, and also to carry the coal into the chute. Owing to the broken ground near the old gangway at the top of the longwall face, cogs were built to keep the top open so that the timber could be brought down from above and insure an open place until the next crosscut was open from the rock tunnel.

In Fig. 7 are shown the typical timber sets used on the pitch and the lowering of the roof behind the longwall face. These sets are composed of two 4- to 5-ft. legs, usually set in hitches in the foot wall, and a 6-ft. stringer, all of about 8-in. timber. As a rule, lagging is used above the stringers. Each miner, on an average, put in two sets during each 8-hr. shift for which he was paid at the rate of \$2.30 per set. The

sets were placed on 4½-ft. centers on the pitch, and the stringers were set end to end. In case of a squeeze, a cap piece may be put under the joint and a post set under this, thereby strengthening this weak point in the timbering.

As the face advanced before a set, the roof was kept up by lagging and temporary posts. As soon as a sufficient distance was made for a set, a hitch was cut into the rib, about 6 in. in depth, and the end of the stringer was placed in it. A post was then set about 1 ft. from the other end, the other post was set about 6 in. from the rib and the temporary posts were knocked out. The lagging above the sets can be reinforced if necessary. Timber packers, working on the opposite shift to that in which the miners work, took the timber to each skip face of the longwall by way of the rock tunnel above.

A good current of air was traveling at the face at all times. Open lights were permitted, and the miners blasted the coal whenever they thought necessary. As there were always two free faces, only small shots were fired. At the time of working this mine, whenever powder was used, it was of the permissible class and was detonated by a No. 7 cap using fuse.

UNION LABOR EMPLOYED

The labor employed at the mines, at the time of working this coal seam, was all union. The scale of wages was regulated by an agreement between the company and the United Mine Workers of America. In most cases, the miners were working by contract, and the average wages were above the scale rate for day work. The minimum wage was \$3.15 per shift of 8 hr. in 1916, as compared with \$5.25 in 1923. The miners on day work received \$3.80 per shift of 8 hr. and were furnished with all tools and blasting supplies, as compared with \$6 under the same conditions in 1923, with the exception that the mines in this district are non-union.

It has been proved that, by longwall methods, a larger tonnage per man can be maintained and a larger percentage of lump can be produced. It is stated, however, that the cost per ton is slightly higher than by the breast-and-pillar system or chute-and-pillar. This was not true at this mine. Using the other system, the coal was not mined at a profit; but with longwall, the cost was reduced to a point where a profit was made.

This was due to several causes. What was formerly a safety-lamp mine, because the gas was inadequately removed by the faulty ventilation, became an open-light mine, for there were no places on the longwall face in which the gas could lodge. When breasts were used, the air had to circulate up and down between the crosscuts, which could be kept open only with difficulty and for but a short time. With the longwall method there were no crosscuts, the ventilation was ascensional and had only one face to sweep. There was no upkeep on the return airway, as it is driven in the footwall rock. Although a large quantity of timber was required, no more was used than was formerly necessary, because under the breast-and-pillar system the breasts had to be well-timbered until the pillars were drawn. In the longwall method, the timber can be taken to the face more quickly than with the breast-and-pillar, for it must be moved down one face only, whereas in the breasts it had to be distributed through the crosscuts and packed up to the faces. Less powder was used, and a larger percentage of lump coal was obtained because



Fig. 3—Miller Bed at Carbonado

The partings are small in the No. 12 or topmost bed. This seam and No. 11 are the only seams that have been much worked below water level.

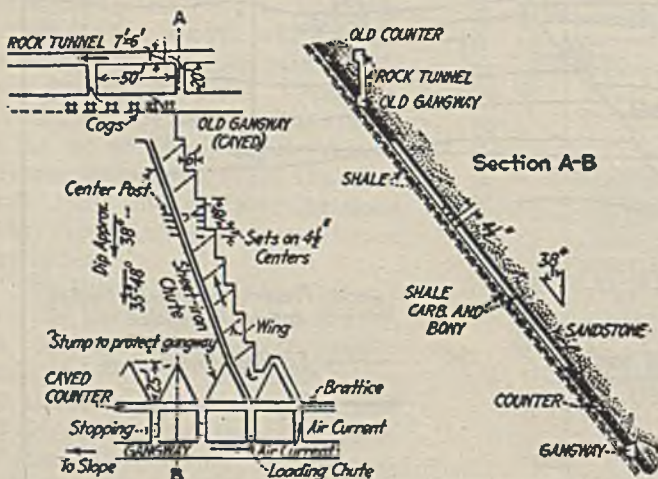


Fig. 4—Method of Opening Longwall Face

Two small chutes are driven up the pitch, here 35 to 48 deg., and from the right one of the pair the longwall face is started in 18 ft. lengths each of which is stepped 6 ft. from the one preceding it. The coal is thrown into a chute and slides down to the gangway.

there were a greater number of free faces. The work was concentrated, and the longwall face permitted a more frequent and closer inspection of the working places by the mine officials. In the longwall system, practically all the coal was recovered. On the other hand the breasts could not be maintained long enough even to drive them to their limits. Consequently the pillars had to be worked by small skips or lost.

When driving gangways in the footwall rock, the first cost of the gangway will be higher; but this will be overcome by the increased recovery of coal above this passage. The gangway will serve as a permanent airway for the level that may be driven below, and will require but a small upkeep, little retimbering being necessary. Ordinarily, no timber is required when driving is done in the footwall rock, and the tracks always will be in good shape.

NO PACK WALLS OR ROADWAYS

If larger coal were the only factor to offset the higher longwall cost under ordinary conditions, and the profits were increased as the result of higher sales realization, it would naturally leave nothing to be desired. However, in a seam of this kind, anything that increases tonnage per man per day will lower cost correspondingly. The illustrations in the foregoing description show that there are no pack walls, as in a regular longwall system, no roadways to be maintained to the face and no brushing is necessary. If the method can be pursued, and it can be unless dangerous and uncontrollable caves prevent its operation, less timber is required.

The face must be kept advancing and open, as devel-

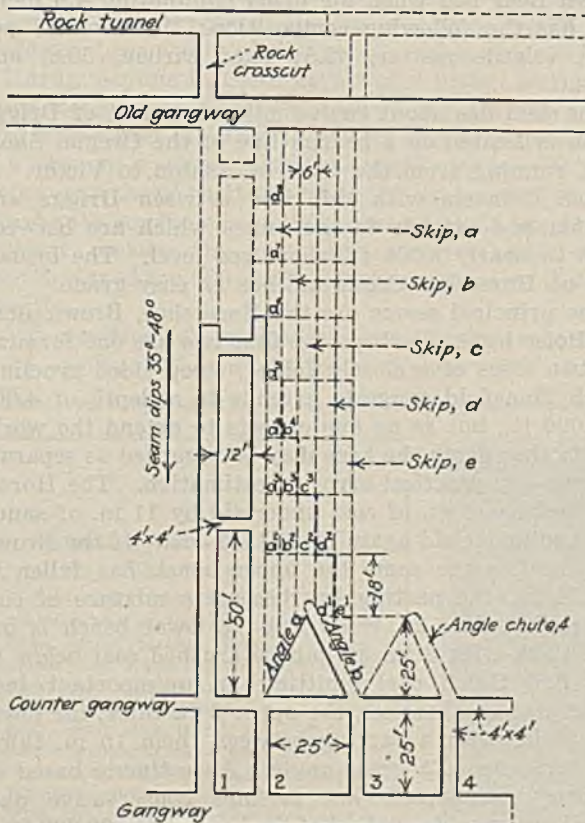


Fig. 5—Plan and Section of Longwall

Note the rock tunnel which replaces the old counter gangway above the top of the lift. In the process of construction it costs more than a roadway in the coal, but it needs less repair. It will be observed that a common chute serves the various steps in the longwall face, but wings are built to protect those below from the coal dislodged by miners working above.

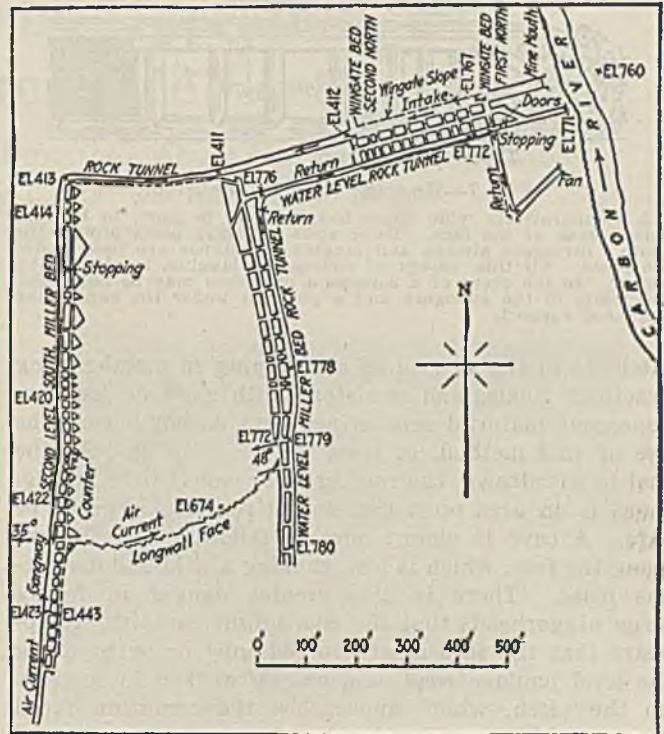


Fig. 6—Map of Miller Mine, Carbonado, Wash.

Observe how the air current returns along the longwall face. The advantage of this system is in its concentration and in the ease with which the places are ventilated. This used to be a safety-lamp mine; now it is worked with open lights. The use of longwall has rendered this possible.

oping a longwall face for ventilation and working is slow and expensive. If squeezing is troublesome, due to the roof sagging or the bottom heaving or sliding, or if there is a combination of these characteristics, such a pitching seam can be profitably worked by a longwall method if it can be worked without loss by any other method. In my opinion, if such a seam is worked with a face not exceeding 400 to 500 ft., lower costs will result, provided the mine is worked steadily enough to keep the face open and the timber can be easily distributed from the top and through a counter or old gangway or similar opening.

TWO CHIEF CAUSES FOR FAILURES

Why, then, is the system not used more and why has it been discarded in several instances where it has been tried? I have studied some of the instances and offer the following suggestions: Probably the two major causes for such failures as have been observed are: First, inexperience and lack of interest on the part of the officials immediately in charge and second, the failure to substitute the contract system in place of day work, a difficulty that may be due to the attitude of the labor union. It is necessary to keep the face advancing and to have regular times for shooting. Timber is most efficiently distributed on the opposite shift from that on which the miners are employed. Congestion of coal in the delivery chutes is a drawback and can be avoided only by keeping chutes cleared as coal is made. Starters are required to keep the coal moving in the chutes, as congestion will surely result if the face is too long. One chute with two outlets will handle 200 to 300 short tons per 8-hr. shift on a longwall face 400 ft. long.

I have never seen a longwall face worked successfully on steep dipping seams when the face is carried up the



Fig. 7—How the Face Is Timbered

A comparatively wide space has, as may be seen, to be supported back of the face. Three rows of heavy posts protect the chute. Stringers always and lagging sometimes are used above the posts. All this, except of course the lagging, is about 8-in. timber. In the event of a squeeze a cap piece may be put under the joints in the stringers and a post set under the cap giving increased support.

pitch, as in the method of overstoping in metal-mining practice. Shales and sandstone with more or less carbonaceous material separating them do not permit the use of this method, at least in this district. As the coal is withdrawn, the roof breaks; and if it be strong, there is an area open that is entirely too large to be safe. A cave is almost sure to follow, and it breaks along the face, which is lost, causing a wild and dangerous place. There is also greater danger in facing large niggerheads that the coal might contain. It appears that the face must proceed inby or outby along the level haulage road, and not be worked in sections up the pitch, which approaches the condition faced when working a wide breast. An area once removed should be of no further use and the quicker it can be allowed to fill with waste the better.

Agree That Mine Should Have Been Protected by Rock Dust

Though apparently the explosion at the City Coal Co.'s mine at Sullivan, Ind., resulted from the ignition of gas, yet all the authorities are urgent in advising that it would not have done so much damage as it did if the mine had been sprinkled with rock dust. Both Coroner William H. McGrew and the Sullivan County grand jury reported in that wise. "If," said the coroner, "the mine had been sprinkled with rock dust the explosion would not have attained such intensity." The grand jury recommended to the Governor that a bill be passed "providing for rock dusting in the coal mines where warranted by conditions."

The verdict of the coroner is in part as follows:

"That the 51 miners killed in the accident came to their deaths by reason of a gas and dust explosion; that the gas probably was caused by a squeeze on the third and fourth north entries off the main east; that the gas was ignited by means unknown; that the state mine inspection department apparently functioned properly, and that the mine owners apparently were not criminally negligent.

"I further find," said he, "that the pillars in said coal mine were not in all cases of proper width and that the miners were not properly instructed as to the depth of the old workings toward which they were mining. I further find that the abandoned works in the mine should have been sealed or ventilated."

The report of the Sullivan County grand jury not only asked the Governor to have a law passed requiring rock dusting but "to oppose the so-called safety lamp measure." They would have him obtain legislation providing for more stringent inspection of mines and sterner insistence by the inspectors that their orders be obeyed, requiring that when inspectors visit coal mines the operators, bosses and men shall not be advised that

an inspection is to be made and providing that the inspectors shall require the mine committee to accompany them on their inspection.

The Governor was also asked to urge the passage of laws under which mine bosses shall be required to inform miners working under them as to the thickness of pillars between the mine in which they are employed and adjacent old workings and shall be compelled to require the miners under their supervision to maintain pillars of safe width and to drill ahead when approaching old workings. The laws, the jury urges, should require mine inspectors, mine bosses and fire bosses to inspect old workings which should be sealed, ventilated or tapped.

In the event of a squeeze the mine bosses, says the jury, should be required to consult with state inspectors and the mine committee relative to the safety of the entry and rooms. They would have the chief mine inspector and his deputies either elected by vote of the coal miners or appointed upon their recommendation.

Idaho Coal Good but Quite Friable

According to a report by George Walkin Evans, of Seattle, to Francis A. Thompson, secretary, Bureau of Mines and Geology, Moscow, Idaho, the coal measures of the Teton field in southeastern Idaho are of fair thickness and of high quality. So far the coal from them is being handled altogether too roughly and the main problem is to put the coal on a market receiving lump coal from Utah and Wyoming. Mr. Evans says chemical analysis shows this coal to be as good quality as any mined in the states named. The coal in the Brown Bear bed when air dried eliminating 4.6 moisture has the following composition: Moisture 2.7 per cent; volatile matter, 42.5; fixed carbon, 50.8, and ash 4.0.

The field lies about twelve miles due west of Driggs which is located on a branch line of the Oregon Short Line, running from the town of Ashton to Victor. A branch connects with this line between Driggs and Tetonia and extends to the mines which are between 6,300 to nearly 8,000 ft. above sea level. The branch goes up Horseshoe Creek and has an easy grade.

The principal seams are the Horseshoe, Brown Bear and Boise beds. Perhaps the first two are one forming the two sides of a closely folded, steep sided synclinal which Mansfield suggests extends to a depth of 4,000 to 5,000 ft., but as no one expects to extend the workings to that depth the beds may be regarded as separate without any practical error in estimation. The Horseshoe bed has 5 ft. of coal underlaid by 11 in. of sandy clay and underlaid again by 6 ft. of coal. If the Brown Bear coal is the same the upper bench has fallen to 3 ft. 4 in., the parting has become a mixture of coal and shale only 2 in. thick and the lower bench is but 1 ft. thick with 3 in. of impure crushed coal below it. The Bell Gulch coal omitting an unimportant inch binder has two benches, the upper 3 ft. thick, the lower 3 ft. 3 in. with a parting between them 10 in. thick. The beds dip at a great angle. An estimate based on extremely incomplete but perhaps conservative data puts the aggregate content of the beds at 11,000,000 tons.

It is not unlikely that future surveys may show that the coal tonnage in this field is much greater than has been suggested. On the other hand, it may be found that the coal is too friable to produce fuel of the desired size.

Better Protection and Operation Will Reduce Maintenance Costs

Mine Law Is Not in Step with Electrical Progress—Abuse Not Use Is Responsible for High Equipment and Power Costs—An Acceptable Slogan Is, "Fuse and Protect Every Motor"

By J. F. MacWilliams

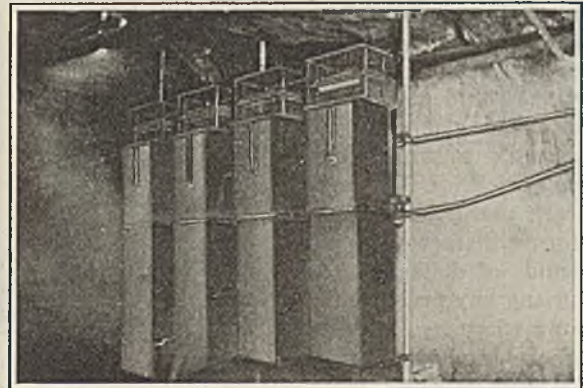
FEW PEOPLE would try to drive a powerful spirited horse without reins or some means by which he could be stopped, should he try to break away from control. Fuses and circuit breakers are installed to control electric power, and yet in many cases are tampered with or improperly adjusted so that they cannot protect equipment.

Electrical machinery assists us in doing work which can be done in no other manner and to keep pace with recent electrical developments it would appear that some revision should be made of the section of the Pennsylvania mine law relating to the use of electricity. Far too little attention is paid to the size of conductors in locomotives and mining machines as well as to the main feeders which serve them. Some method of inspection and regulation would unquestionably reduce costs and minimize the dangers of mining.

It is a poor policy to purchase an approved type of mining machine or locomotive and then connect it to a small feeder, thereby producing dangerous heat in the conductor. Likewise, it is dangerous to connect the machine to a line with no overload protection, thereby defeating the purpose of the inclosed type motor, controller and the costly special cable used in the machine.

Hardly anyone in these days would install one set of fuses to take care of several motors in a factory, therefore why expect one fuse to protect two or more motors in a locomotive where conditions may occur in which one motor may carry the total load. Many locomotives are wired with conductors of little over one-half the proper capacity because the lugs and connectors have often been designed for 500 volts and yet are used on 250-volt circuits.

The practice of overloading locomotives is in most cases costly; the speed is lowered, less work is per-



Down Where Overloads Occur These Four Breakers Protect the Mines Against Power Delays

Unless a direct-current feeder system is sectionalized an overload on any line will shut off all the power and demoralize the haulage, put out the lights, stop the pumps and cutting machines and shut down the hoists. These breakers are located at a junction point where they were easily installed. Note that each is mounted above a safety switch. The boxes are locked and fireproof.

formed and the cost of maintenance is greatly increased. When a locomotive is overloaded there is grave danger that in case of emergency the brakes will not hold the trip and serious injury to the operative may follow.

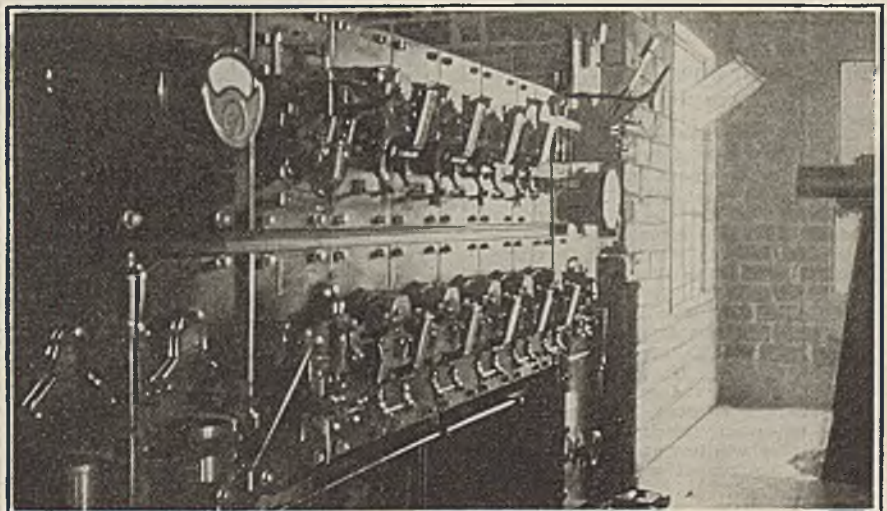
The results of putting cast-iron wheels on a locomotive designed for steel wheels are far less liable to be serious and costly than the placing of steel wheels on a locomotive designed for cast-iron wheels. In the former case the locomotive is not so liable to be given too heavy a load, but in the latter case it may be overloaded as much as 25 per cent.

Dull or improperly set picks on mining machines introduce danger of overload and injury to the operative. Set the teeth of a common handsaw more to one side than the other, then try to use it and you

Article presented at Mining Institute Meeting, Barnesboro, Pa.

Automatic Contactors Reduce Line Surges

Controllers which automatically accelerate the motor are much better than other types. Each contactor closes only when the current has decreased to a level so low that it will prevent an abnormal surge when more resistance is cut out. If automatic acceleration could be applied to locomotives it would be impossible for the motorman to start a trip with the motors in parallel. Jerking, galloping locomotives are due to poor operation.



will see quickly why the mining machine picks should be set correctly.

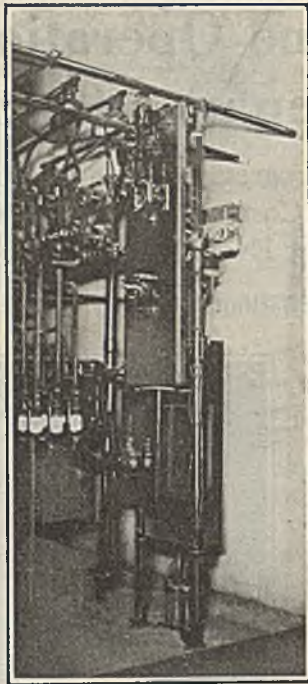
If reel-type gathering locomotives and mining machines received their power supply through a plug switch at the room neck they would no doubt operate more efficiently and with greater safety.

The life of motor armatures used in mining service is shorter than for armatures used in almost any other work and one of the principal reasons for this is the abuse to which they are subjected. Oftentimes men are permitted to run machines which cost several thousands of dollars, without having any preliminary training whatever. Due to the great quantity of dust which most mines contain the ventilating ducts in the motors become blocked, thus reducing the ventilation and thereby causing the motor to run at an abnormally high temperature.

Bad field coils, if allowed to remain in service, will cause excessive motor speeds, cross currents in the armature and abnormal wear of the bearings, the armature being frequently stripped in consequence. Pinions not meshed sufficiently deep in gears also put a heavy strain on bearings and shafts, thus reducing the life alike of shaft, bearings, gears and pinions.

Frequently brake rigging on locomotives receives insufficient attention. In consequence the pins and holes become badly worn allowing the brakes to twist instead of clamp on the wheels. With this condition existing it is impossible to get maximum braking effect, and the locomotive becomes dangerous to operate.

It has always been a question in my mind as to the advisability of installing 2,300-volt feeders in a mine. Oil switches and other apparatus carrying high voltages must be watched more carefully where such feeders



On Guard Outside

This automatic circuit breaker protects from peak loads one of several rotaries tied into a small super-power system at the Centralia Colliery of the Lehigh Valley Coal Co.

are used. Admitting that there are great advantages in installing an inside power-converting substation, it must also be conceded that there are disadvantages in the practice. The room for the substation must be dry and arranged so that little dust will enter. Dust and moisture will quickly affect the 2,300-volt winding of the transformers and machines. Also, danger from shocks are greater inside the mines because the ground is usually damp and of low resistance.

SUBSTATIONS SHOULD BE ACCESSIBLE

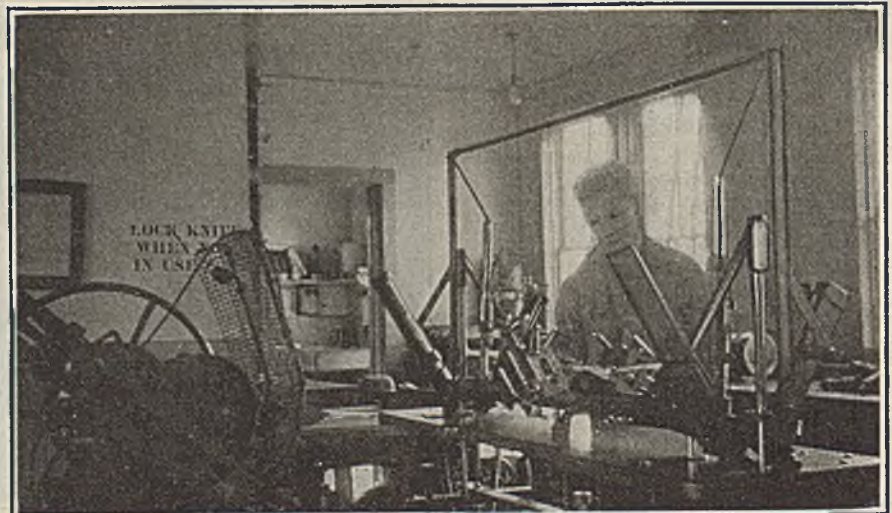
Motor-generator sets and rotary converters are important machines; if they are damaged either the mine is shut down or the tonnage is reduced. Consequently, substations should be installed where they are readily accessible for inspection and repair. Stationary machinery in the mine, where purchased power is used, generally can be driven more efficiently by alternating-current than direct-current motors. The all-day efficiency of the motor-generator set or rotary is seldom better than from 50 to 60 per cent. Considering alternating-current and direct-current feeders for motors equally efficient in the distribution of energy, this means that if transformers are used in preference to converting machines a saving in the power delivered to the stationary motor of 37 to 47 per cent will be made. Due to the fact that the direct-current voltage generally fluctuates more than that of alternating-current lines an alternating-current motor will generally give better results than a direct-current machine.

With a poor feeder system the loss of power is a small item compared to the greater cost of maintenance and greater labor cost caused by the reduced speed of the machinery. For this reason it should be remembered, when using the tables of the National Board of Fire Underwriters, that the wire sizes given in these tables are such as to prevent undue heating and not excessive voltage drops. They provide merely safety from fire and not adequate economy in operation.

The first instruction given the road engineers of one of the large manufacturing companies is, "When disassembling a machine, first, procure boxes in which to put the parts removed, so that no part may be lost or mislaid. When removing parts regarding the correct position of which you may have doubt at the time of replacement, mark them in such a manner that all question will be removed when the machine is reassembled. This is important. For illustration take the Curtis

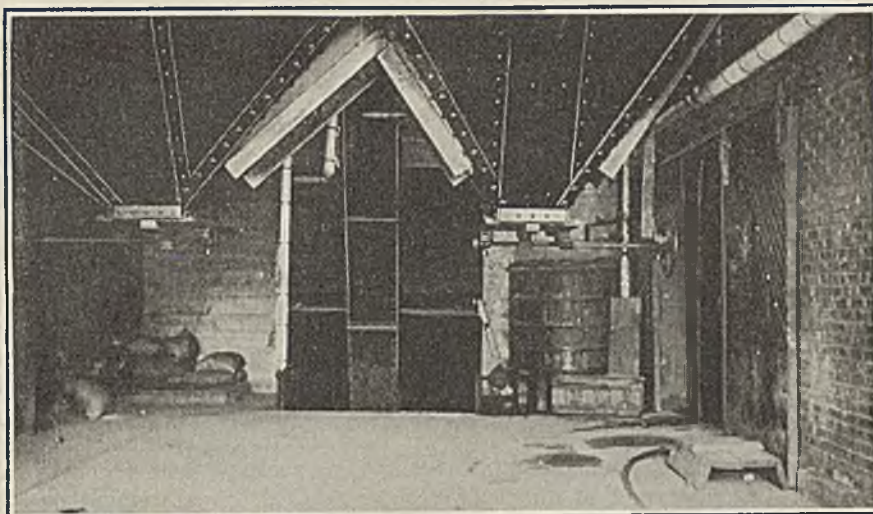
Mine Repair Shop Where Savings Are Started

Armatures would be rolling to the repair shop less frequently if they were properly wound and fitted with ball or roller-bearings. The practice of sitting on the circuit breaker or fusing the motor circuits too high is also responsible for high maintenance costs. The illustration shows the electric repair shop of the Madison Coal Co. at Glen Carbon, Ill. It is claimed that this shop saved the company over \$5,000 the first year it was operated. The work done here is made to last and as a consequence the savings effected in later years may not seem nearly as large because they will have to be calculated against equipment which has been well repaired.



Wheels That Spin Don't Always Work

There are many different grades of sand; some have sharp crystal grains, some are mixed with clay and others consist of round pebbles. Only clean dry sharp sand should be used under locomotives. Clay merely insulates the wheels from the rails. Round pebbles act like marbles under the foot or like ball-bearings under a shaft. This modern sand drying room is at the Orient No. 2 mine of the Chicago, Wilmington & Franklin Coal Co. near Frankfort, Ill.



steam turbine of the old type having buckets milled out of solid material and placed on the wheel in sections. This wheel had been balanced at the factory, and it is possible that a section on one side may weigh more than one on the opposite side. Consequently if their

positions are reversed serious vibration may result. Changing one bolt in the commutator of a 4,000-r.p.m. machine might cause it to be unbalanced. A difference of a sixty-fourth of an inch in the length of a bolt will unbalance some machines.

Why Not House Fire-Truck Driver at Mines in Same House as Apparatus?

Most mining communities now-a-days are equipped with some kind of fire-fighting apparatus. Sometimes this takes the form merely of suitable fire hose, nozzles, etc., stored at strategic points. As hard roads and pavements have become the rule rather than the exception about the mines, however, far more elaborate apparatus and equipment in many instances has been employed. This not infrequently includes fire engines, hose carts and the like of a kind and type that would prove a credit to the fire department of many a large town or small city.

easy to detail or appoint men who live near where the equipment is stored, to places in the fire brigade, but it is quite another matter to get them all aroused promptly in case of emergency.

With the modern light-weight fire-truck, however, the problem is somewhat simplified. One man can easily drive such a truck and only one or two others are necessary for its efficient operation. The lower story of the building here shown houses the fire engine or truck, and the upper story serves as living quarters for the driver and his family. This man is accordingly immediately available when a night alarm is turned in.

The accompanying illustration shows the building that houses the chief fire-fighting equipment of a large West Virginia mining town. One great difficulty or obstacle to the use of modern fire equipment in communities of this kind has been the length of time consumed, particularly at night, in getting such apparatus to the scene of a fire should one start. Obviously, a paid fire department is out of the question so far as the average mining town is concerned. It is, of course,

In this case also the truck driver is an old employee who has seen the town grow from a small group of dwellings to its present size. He is thoroughly familiar with every street, alley, highway and byway in the place and consequently can drive the truck rapidly and safely anywhere on even the darkest of nights or during the roughest of weather. Furthermore he takes genuine pride not only in keeping the equipment intrusted to his care in spick and span condition but also in maintaining it in proper working order and ready to respond instantly in time of emergency.

Fire House at Mine Plant

By making it big enough to house the driver and his family, the coal company is assured of having someone at hand to take the truck out as soon as a fire starts.



Saves Time When Houses Burn

When the engine is in the house in which the driver lives he gives it better and closer attention than he is likely to do when it is at some distance from home.

Soft-Coal Industry Handicapped By Poor Salesmanship

Knowledge of Suitability of Fuel for Specific Requirements and Ability to Advise Consumer What to Burn, and How, Is Needed

By Harry L. Gandy

Executive Secretary of the National Coal Association

ON 14th Street, N.W., in Washington, D.C. is a grocery store, where a manufacturer's representative dispenses delicious morsels and demonstrates how the product may be tastily prepared.

It may come to something like that in the exploitation of bituminous coal for domestic use. At least, the next few years promise intensive effort along constructive lines in the sales end of the coal business. Coal is something to burn, true; and so is food something to eat, as a rule. But there are many kinds of coal which require different treatments and the respective values of which are determined by several factors.

It is safe to say that in few lines of business has the factor represented by salesmanship been so neglected both by producer and retailer. It is a poor haberdashery salesman today who cannot match a tie to a shirt and a suit, but rare is the salesman who has made a study of bituminous coal for specific requirements and tells the customer just what coal he should burn and how to burn it in his particular furnace. When the coal man becomes a salesman, rather than a mere "order taker," through a happy combination of co-operation on the part of the producer and appreciation on the part of the retailer of what salesmanship will mean, translated into terms of satisfied customers, the coal business will come into its own. And the use of bituminous coal, particularly in the New England states and all along the Atlantic seaboard and through the Middle West, will materially increase. Today something like 70,000,000 tons of bituminous coal, or about 15 per cent of the annual production, goes into domestic consumption, and I venture the prediction that the day is not far distant when more than 100,000,000 tons of soft coal will serve as the economical fuel for household heating. Salesmanship will do it.

FAVORS REMODELING PLANTS

The National Coal Association does not propose to promote the use of coal by acting as the sales agency for any particular coal or any particular heating device, but rather through an educational program, designed to bring home to the buying public the salient facts concerning the product. Speaking of heating equipment, however, the Association does endorse the suggestion advanced at a meeting of District No. 10, American Association of Engineers, held in Washington Feb. 23, 1925, that "bituminous coal producers and handlers move to bring about the remodeling of heating plants in cases in which remodeling is necessary, so that soft coal can be used." The Coal Merchants' Board of Trade of Washington took a forward step this winter in recommending to the District of Columbia Commissioners revision of the building code to insure sufficient flue capacity in heating plants, domestic and otherwise, for the satisfactory burning of the full range of fuels such as coal, both bituminous and anthracite; wood, oil, etc. The action of the Washington retailers could well be followed elsewhere.

Reduction of the household heating bill of the nation is a task which merits the best thought of the industry. I believe that the present efforts of the Boston Chamber of Commerce to acquaint householders of Massachusetts with the solution of the heating problem, through broadcasting information on how to burn bituminous coal, will be followed by many like bodies of business men.

The more I study the matter the firmer my conviction grows that a more widespread use of this coal for household heating is solely a matter of salesmanship. Once a customer has obtained the variety of coal best adapted to his heating equipment and has been shown how to use it, he becomes a permanent user and also a potential salesman for the product. I have in mind no less an authority on coal than O. P. Hood, chief mechanical engineer of the Bureau of Mines. Mr. Hood, who recently gave to the National Coal Association a statement on "The Successful Burning of Bituminous Coal," based his statement on his personal experience with this fuel in his own home. George S. Pope, chief engineer of the Government Fuel Yards, Washington, burns this coal in his home with most satisfactory results. The even temperature, excellent heating service, low ash content and big saving in cost to be had from bituminous coal, are strong selling points.

TOO OFTEN NOBODY KNOWS

Frequently the customer is in total ignorance of the quality of coal suited to his equipment and the manner in which to burn it, and the sales agency is equally in the dark on both subjects. But the day is coming when people will really know kinds of coal, as today they know makes of hats and of clothes, and each retailer will be identified in the mind of the public with a special brand or brands of coal. Salesmen will be as expert in recommending coal for your furnace needs as are tailors in passing on the cut of your clothes, and you will be shown how to burn coal as you are shown how to operate your automobile.

Coal is being sold more and more by its trade names and producers have taken advantage of registration of their trade-marks. Yet in view of the fact that there are over 7,000 mines, the well known brands are comparatively few. The custom of registering trademarks has several distinct advantages, viz: (a) it gives individuality and personality to the coal; (b) it gives the user a convenient method of reordering; (c) it is indispensable for coals with certain distinctive qualities.

Within reasonable limits, any good coal may aspire to leadership in the market. There are, however, several deterrent factors, such as freight rates or the geographical location and plenitude of coal deposits. In other fields of business trademarks have been used most successfully, and the names in some instances have almost become household words. Take for example, the name "Uneeda," undoubtedly invaluable to the National Biscuit Co. The costs of registration are nominal, and almost any word or design, other than of a geographic character, may be registered, thus entitling one to the exclusive use of that name in interstate commerce. It tends to give the coal distinctiveness. The effect of the registration is similar to that of the registration of a deed to real estate, and serves as a notice to all that the particular name identifies a certain coal.

Better salesmanship, a realization of the particular needs of the consumer and a more permanent relationship will bring satisfied customers and a better understanding between bituminous coal industry and public.

Scenes at the Stein Mine in Dortmund, Germany, Where 136 Men Were Killed And Only 8 Saved



Without the Gates



Adjusting His Mouthpiece

THE explosion occurred Feb. 11 at a coal mine owned by Minister Stein, of the Luther Government. Nine men walled themselves in but were killed by poisonous gases.



A Rescue Squad

Anthracite Trade Near Accord On Uniform Standards

Majority of Operators Indorse Proposal to Establish Specifications on Preparation and Sizing of Domestic Coal—May Act Today

UNIFORM STANDARDS of acceptable preparation and sizing of the domestic sizes of anthracite coal are expected to be officially announced within a few days. The majority of the operators already have given their approval to specifications covering testing screen meshes, undersize and maximum permissible percentages of slate and bone. Unless there should be an unexpected last-minute shift in attitude on the part of a few producers, formal promulgation of the standards probably will follow a meeting of the anthracite operators called for Philadelphia today.

Indorsement of the new specifications will mean the establishment, for the first time it is believed, of uniform standards that may be used by the receiver of the coal. Heretofore standards of preparation have varied with each producer, and there was no way in which the receiver could check against these standards. During the World War the Pennsylvania State Fuel Administration did set up regulations governing the percentages of oversize and undersize that might be permitted, but there was nothing in the way of general supervision. The common understanding was that all the producer might be legally required to do was to ship a "merchantable" coal.

The proposed standards are as follows:

Proposed New Standards for Anthracite

Size	Testing Screen Round-Hole Meshes (In inches)		Maximum Permissible Percentages of		
	Through	Over	Undersize	Slate*	Bone*
Broken.....	4 1/2	3 1/2	15	2.0	2.0
Egg.....	3 1/2	2 1/2	15	3.0	3.0
Stove.....	2 1/2	1 1/2	15	4.0	4.0
Chestnut.....	1 1/2	1 1/4	15	5.0	5.0
Pea.....	1 1/4	3/4	15	7.5	7.5

* For each 1 per cent reduction in slate, there may be a 2 per cent increase in bone. † Plus an additional allowance of 5 per cent for unavoidable breakage.

The uniform standards given are the outgrowth of extended conferences among the operators and between the producers and the anthracite trade relations committee of the National Retail Coal Merchants' Association. At the outset the question of resizing was much to the fore, but that part of the program met the same fate which overtook a similar attempt a few years ago. At that time there was a strong sentiment among some of the operators and many retailers that the difficulties in marketing hard coal and in balancing the monthly shipments would be lessened if the number of major domestic sizes were reduced to two—a furnace size and a range size.

Experiments in resizing were conducted at one of the operations of the Lehigh Coal & Navigation Co., but the opposition of two or three of the larger companies enjoying a substantial lake business on chestnut prevented any concerted action upon the proposal to eliminate pea coal by adding the larger pea to the chestnut and putting the undersize into No. 1 buckwheat. A few operators did offer a range coal for shipment for two years, but finally abandoned active efforts to push that size because competitors stuck to the old sizing.

During the early course of the present negotiations the proposal to discontinue pea was again vigorously pressed. As late as the middle of February a majority

of the producers were said to be willing to agree to such a plan and many were enthusiastic in support of it. The retailers' committee expressed the belief "that a resizing program is essential to the solution of the various problems in marketing all sizes of domestic coal and that the chief essential to the success of resizing programs is that all of the so-called 'line companies' shall agree upon a uniform basis of sizing."

SENTIMENT ON RESIZING DIVIDED

There were, however, many retail distributors who were bitterly opposed to any plan which would increase the percentage of pea coal in chestnut or any size that might be offered as a substitute for chestnut. A numerically small minority of operators who are important factors because of the large tonnages they produce also lined up against the suggested program and it was again shelved. The representatives of the producers then concentrated their attention upon the possibility of arriving at some standardized and uniform sizing specifications. Substantial agreement upon the standards set forth in a preceding paragraph was reached at a conference held several days ago. These standards were submitted to the representatives of the retailers for approval and were also indorsed at a meeting of independent operators held in Philadelphia on March 10.

The adoption of these standards will, of course, necessitate screen changes at many of the breakers. It does not mean, however, that the screens to be used will conform in size to those given in the table. Those sizes are the standards for the testing screens at the retail yards and are to be used by the retailer to determine whether the shipments received measure up in sizing and quality to the standard. Differences in the fracture of the coals mined and in the pitch and length of the screens in the breakers will make it impossible for the producers to have uniform sized screens throughout the region. Each operator will have to so adjust his screens at his breakers that the product shipped will conform to the standard specifications.

That the product received by the retailers should be standardized was the principal contention put forward by the committee of the National Retail Coal Merchants' Association in its conferences with the operators. "The present lack of uniformity among the various companies and the variable bases of sizing and preparing coal in each company," the committee declared, "is the cause of great difficulty to all concerned and gives rise to much of the criticism, complaint and ill-will on the part of consumers.

"The practice of mixing a variable percentage of pea coal in chesnut causes serious difficulty and to our mind is unwise and unfair. We submit that the introduction of excessive percentage of pea coal costing approximately \$3 to \$3.50 at the mines less than the chestnut with which it is mixed naturally gives rise to serious objection and leads to complaints on the part of consumers that retailers are guilty of fraudulent practice in deliberately introducing low-priced pea coal and selling it as chestnut at the chestnut price.

"Our experience is that chestnut coal is being produced by the various companies with a percentage of pea and smaller coal varying from 5 to 30 per cent." Where dealers receive chestnut with 20 to 30 per cent of small sizes in it, argued the committee, they cannot successfully hold their business against chestnut having only 5 per cent of smaller size.



Wave of Wage Reductions Sweeps Colorado Mines

Colorado is cutting wages in an effort to keep its mines going. For months the Oakdale Coal Co. and the Mutual Coal Co., in Walsenburg, and the Hayden Coal Co., in Routt County, have worked successfully on a low wage basis. On March 16 the southern Colorado string of Colorado Fuel & Iron Co. mines took a cut of 20 per cent below the Jacksonville scale, which has prevailed in most Colorado mines, and immediately a line of other companies with properties scattered over the state followed suit and filed with the state Industrial Commission notices of reductions to wage levels approximating that of 1917. Colorado is not a union state but has been paying union wages generally except at the Oakdale, Mutual and Hayden mines. At the former two wages have been about 33½ per cent below the Jacksonville scale. At the Hayden mine the 1917 scale has prevailed.

The reduction at the Walsenburg group of Colorado Fuel & Iron Co. mines was made at the instance of the miners, working under the much discussed Rockefeller plan of employees' representation. Foreseeing general shutdowns and consequent loss of work, the men, then drawing the straight union scale though working non-union, approached the company through the representation plan and finally agreed to the 20 per cent cut, which took effect Monday of this week. The base rate for underground day wages drops from \$7.75 to \$6.25, tonnage and other rates being reduced in proportion. Reservation was made by the company that if competing fields reduce wages to a point that makes competition impossible, a further cut by the Colorado Fuel & Iron Co. will be necessary.

The first Walsenburg district mines to follow the Colorado Fuel & Iron Co.'s lead were the three operated there by the Temple Fuel Co. and the Thor and Royal mines of the related National Fuel Co. and Royal Fuel Co. The rest of the region is expected to cut to the 1917 scale as quickly as possible.

The wave of reductions has already reached Routt County, where the Hayden mine, with its 1917 scale, was only a pace setter. The Colorado & Utah Coal Co. has already filed its petition with the state commission for permission to adopt the same scale, and the remainder of the companies are reported to be preparing to follow suit.

The direct result of all these actual and proposed wage cuts, of course, is a reduction of the price of coal to the consumer.

News Of the Industry

Cleveland Conference Of Operators Called Off When Illinois Stays Out

Cleveland, Ohio, March 16.—The proposed conference of coal operators here today failed to effect any definite result. Operators in the eastern end of the Central Competitive Field strove their noblest to get something done toward an operators' proposal for a remedy for the ills that the industry suffers under the Jacksonville agreement, but without positive result. The trouble was that Illinois refused to take part. The conference started Monday with Pennsylvania, Ohio and Indiana present in a secret advance session, hoping to propose some plan that would induce Illinois to rush here today. The meeting broke up, however, after much confused talk and the final word Monday night was that no further session would be worth while without Illinois. As nobody from Illinois had appeared on Tuesday up to noon the meeting was called off.

It is reported that Ohio and Pennsylvania will cut wages to the 1917 scale about April 1.

Soft Coal Overdeveloped, Says P. R.R., Opposing New Road

In a petition filed March 11 with the Interstate Commerce Commission the Pennsylvania R.R. cites overdevelopment of the bituminous coal industry as a cause for refusal of a certificate authorizing construction of new railroads for development of coal lands.

The plea of the Pennsylvania was made in connection with application for rehearing in the case in which Division 4 of the commission authorized the Cambria & Indiana R.R. to extend its line in Cambria County, Pennsylvania, at a cost of \$500,000 to enable a shipper of bituminous coal, located on the Cambria & Indiana, to open and develop another mine at a cost of approximately \$3,000,000.

The Pennsylvania declared it had opposed construction of the extension mainly on the ground that further development of the bituminous coal industry at this time was distinctly not in the interest of the public and that the commission ought not to authorize a carrier to construct a line when the purpose was to make possible further development of bituminous coal territory.

Pittsburgh Coal Closes Sixteen Mines and Will Start Big New Operation

The Pittsburgh Coal Co. has authorized the construction of a new tippie at Douglas Hollow, on the west bank of the Youghiogheny River. The tippie, which will be designed by Allen & Garcia, consulting engineers, of Chicago, will have a capacity of 4,000 tons per day and be modern in every respect, with shaker screens and rotary dump. It will be on the Pittsburgh & Lake Erie R.R. Coal for the new tippie will come from the present working of three other mines the tipples of which will be abandoned.

It is reported that this company, which has more than fifty mines in the Pittsburgh district, is embarking on a larger program of concentration of mine plants in which the smaller and older mines are to be concentrated into a fewer number of larger scale. These will be million-ton plants with every modern facility for cost cutting.

An important development in this program is the immediate complete abandonment of a number of its mines, reported as sixteen. These mines were idle throughout 1924. This program of severe retirement, by which whole villages of mine workers are to be definitely cut off from possible future employment, is generally understood to be the direct result of the first year of the Jacksonville wage agreement with the United Mine Workers, by which the wages at union coal mines are held up to the post-war peak, while non-union miners have accepted a wage cut sufficient to permit the production of competing coal at costs as much as a dollar below those in the Pittsburgh district.

Consolidation Co. Miners in Somerset Take Wage Cut

Miners in the employ of the Consolidation Coal Co., in Somerset County, Pennsylvania, have decided to accept the request of the company that they take a reduction of 25 per cent in wages. Acceptance of the cut, which became effective March 10, followed a vote taken among the miners.

While the United Mine Workers have spent much time and money in efforts to organize the Somerset region little has been accomplished and nearly all mines in the region are operated on an open-shop basis.

Although nothing definite has been announced it is believed that other mines in the Somerset field will ask their employees to accept a similar reduction.

January Mine Accidents Caused 215 Fatalities; 3.62 per Million Tons

Accidents at coal mines in the United States in January, 1925, caused the death of 215 men, according to reports from state mine inspectors to the U. S. Bureau of Mines. Included in this number are 6 fatalities caused by an explosion at Providence, Ky., on Jan. 15. The death rate for January, 1925, was 3.62 per million tons of coal produced, compared with 3.58 in the preceding month and 4.12 per million tons in January last year. The output of coal during January was 59,314,000 tons, of which 51,914,000 tons was bituminous coal and 7,400,000 was anthracite. In January a year ago the production was 60,388,000 tons, of which 52,464,000 tons was bituminous and 7,924,000 tons was anthracite.

In bituminous coal mines alone the number of fatalities in January, 1925, was 161, and the fatality rate per million tons was 3.10, as compared with 213 deaths and a fatality rate of 4.06 in the same month last year. The average fatality rate for January over a ten-year period (1915-1924) for the bituminous coal-mining industry is 3.35, thus indicating that the record for January of the present year was better than the average. For anthracite mines alone the number of lives lost in January, 1925, was 54, which, based on the production of coal during the month, indicates a fatality rate of 7.30 per million tons, as compared with a ten-year average rate of 6.69 for the same month.

Old Coal Field Is Dead

The Chicago, Wilmington & Franklin Coal Co. has closed down and abandoned the Wilmington No. 3 mine of its string, thus ending the career of the Braidwood mining field in northern Illinois. One after another of the mines that once made that region a great coal field have passed and their towns have practically disappeared. The closing of No. 3 mine, which had employed 300 men, is a hard blow to the town of Wilmington, the only one of the coal towns left in the region.

The marked reduction in the fatality rate from 4.12 in January, 1924, to 3.62 in January, 1925, was due mainly to the fact that two major explosions occurred in January last year as a result of which 69 lives were lost, while only one major explosion occurred in January this year, which resulted in the loss of 6 lives.

A comparison of the per-million-ton fatality rates for January, 1924, and 1925, and for the entire year 1924 is shown by the following figures for the principal causes of fatal accidents at all coal mines, both anthracite and bituminous:

	Year 1924	Jan. 1924	Jan. 1925
Falls of roof and coal.....	1,835	1,822	1,770
Haulage.....	607	430	809
Gas and dust explosions.....	935	1,308	270
Explosives.....	174	149	270
Electricity.....	141	666	152

Cash and Stock for Owners In West Virginia Merger

Details of the proposed \$100,000,000 consolidation of coal mines in West Virginia reported as under way Feb. 2, were disclosed March 12 by Charles R. Flint of Flint & Co., Inc., 25 Broad Street, New York City, who was for many years known as "the father of trusts."

The advantages of the merger, which includes large operations in the Morgantown, Clarksburg and Fairmont sections of West Virginia, according to Mr. Flint, will be a reduction of operating and selling expenses, decreased cost of mine supplies and merchandise through centralized buying and the standardizing of the quality of coal produced.

The Edward V. D'Inwilliers Engineering Co., of Philadelphia, he said, will determine the valuation of the properties. The method of capitalization provides that the mine owners will receive a percentage of cash for their properties in addition to blocks of preferred and common stocks.

Strong competition by the operators of Ohio, Kentucky and West Virginia, as well as those further west, for railroad orders was said to have been responsible for the consolidation. The owners of about eighty small companies have sent their detailed statements to Mr. Flint and to A. H. Bickmore & Co., who is aiding in formulating the plans of the merger.

Coal-Mine Fatalities During January, 1925, by Causes and States

(Compiled by Bureau of Mines and Published by Coal Age)

State	Underground								Shaft				Surface				Total by States										
	Falls of roof (coal, rock, etc.)	Falls of face or pillar coal.	Mine cars and locomotives.	Explosions of gas or coal-dust.	Explosives.	Suffocation from mine gases.	Electricity.	Animals.	Mining machines.	Mine fires (burned, suffocated, etc.)	Other causes.	Total.	Falling down shafts or slopes.	Objects falling down shafts or slopes.	Cage, skip or bucket.	Other causes.	Total.	Mine cars and mine locomotives.	Electricity.	Machinery.	Boiler explosions or bursting steam pipes.	Railway cars and locomotives.	Other causes.	Total.	1925	1924	
Alabama.....	3		1									6												6	4		
Alaska.....																									0	0	
Arkansas.....				2	1							3												3	2		
Colorado.....	3		1									5												5	1		
Illinois.....	6		5	4			2					17												18	61		
Indiana.....	3		1		3							7												8	9		
Iowa.....	2											2	1											3	2		
Kansas.....					1							1												1	2		
Kentucky.....	5		1	6								12												12	15		
Maryland.....												1												1	0		
Michigan.....																								0	1		
Missouri.....																								0	2		
Montana.....																								0	5		
New Mexico.....																								0	1		
North Dakota.....																								0	0		
Ohio.....	3		4		4							11												11	9		
Oklahoma.....																								0	0		
Pennsylvania (bituminous).....	17	1	12									31	1				1							32	60		
South Dakota.....				2								2												2	10		
Tennessee.....																								2	7		
Texas.....																								0	0		
Utah.....	2											3												3	0		
Virginia.....	6											6												6	4		
Washington.....	1	1	1									3												3	0		
West Virginia.....	26		10									40											1	5	45	31	
Wyoming.....	1											1												1	4		
Total (bituminous).....	78	2	37	14	9		8	1	2			151	2		1		3	5					2	7	161	213	
Pennsylvania (anthracite).....	21	4	11	2	7		1					49		1			1						1	3	4	54	36
Total, January, 1925.....	99	6	48	16	16		9	1	2			200	2	1	1		4	5				1	5	11	215		
Total, January, 1924.....	99	11	26	79	9		4		3			231	3	2			5	4					4	13		249	

Government Eyes Riveted on Conference Of Operators at Cleveland

Policy of Some Operators to Force Showdown Considered a Mistake
by Others Who Favor Waiting Game—Contemplated Shut-
downs Might Be Construed as Violation of Agreement

By Paul Wooton

Washington Correspondent of *Coal Age*

Events are hurrying to a showdown in the coal situation. As this is written the operators are on the eve of their Cleveland meeting. They are united enough on what they want, but many of them think it is foolish to waste time trying to persuade the union to co-operate in a reduction of wages. There is decided sentiment in favor of allowing time to continue to operate in their favor. "Keep Lewis sweating" is their slogan. Many of the operators, however, are in such a desperate position that they are ready to close their mines at the end of the coal year.

While 95 per cent of the operators in the Central Competitive Field are known to be losing money, the great majority of them are opposed to any concerted closing of mines, which would be regarded as a lockout, or to any other step intended to force the issue. They recognize that any step by the operators which can be interpreted as a violation of the agreement would help to sustain the position of the United Mine Workers.

Signs are multiplying that the union too is becoming desperate. Van Bittner, president of the West Virginia district, is about to call upon all union and non-union men, working in non-union mines, to walk out on April 1, it is said. This extreme step has been forced by the loss to the union of both mines and miners.

Complications Increase

Another unexpected development has increased the difficulties of the situation in which the union operators and the mine workers find themselves. A tentative opinion in the lake cargo case submitted to the Interstate Commerce Commission by two of its examiners recommends a change in the rates which would increase the differential against the southern fields by 28c. While this eventually would operate somewhat to the advantage of union field shippers, the immediate effect is to make customers slow in ordering while there is a prospect of obtaining lower freight rates by waiting. Coming just at this time it promises to be the last straw to many operators.

Operators and mine workers alike seem to be giving up hope either of inducing or of coercing the federal government into initiating a conference to consider a modification of the Jacksonville agreement. All seem to have come to the realization that while the government well may urge employers and employees to settle their differences peacefully, it could not be a party to the abrogation of a labor agreement without establishing a dangerous precedent.

The argument that the government in effect urged the operators to renew the existing scale when it advised participation in the Jacksonville confer-

ence, since that was the only possible agreement that could have been reached at that time without a strike, seems not to impress officials. Both operators and mine workers were represented at Jacksonville by full-grown men, it is pointed out, who were chosen because of their skill and experience in such negotiations. When they entered into the agreement they knew it meant self-sacrifice and a major surgical operation without anaesthetic.

That there is ample reason for both the union operators and the United Mine Workers to co-operate to meet a common menace is shown by the final analysis of lake cargo business in 1924. For some thirty years the railroads concerned with the lake cargo trade have kept records of this movement. For twenty-one years the figures admit of comparisons showing the lake tonnage originating in each field. The story told by those records indicates plainer than words the growth of the non-union fields at the expense of union tonnage.

In 1903 the union districts of Pittsburgh, southern Ohio and eastern Ohio had 81 per cent of the lake business. In 1913 they still had 68 per cent, but by 1921 their share had dropped to 55 per cent; in 1923 to 52 per cent, while in 1924 it shrank to 36 per cent. Eastern Kentucky did not participate in lake business at all until 1909, when it shipped less than one-tenth of 1 per cent of that movement. This small beginning, however, grew to 11 per cent in 1923 and to 15 per cent in 1924. West Virginia's share in the lake trade increased from 20 per cent in 1903 to 37 per cent in 1923 and 47 per cent in 1924.

Non-Union States Lead

The record of the increase in mine capacity gathered by the Harding Coal Commission, now in the process of printing as a public document, shows that the non-union states of Kentucky, West Virginia, Alabama, Virginia and Tennessee have had extraordinary increases, far in excess of the growth of production in other parts of the country. In 1898 these states had only 18 per cent of the full-time capacity of the country. By 1912 they had increased somewhat to 24 per cent, but their growth during and since the war, especially since, has been marked. In 1923 their joint capacity was 35 per cent of that of the country.

In the same period the full-time capacity in Pennsylvania, Maryland and Ohio decreased from 50 per cent of the country's total to 34 per cent. The State of Illinois has held its own, but that is all. Indiana has shown some increase, but the Southwest Interstate region has suffered a severe loss. Before 1898 this latter region had 10 per



Walter Barnum

Elevation of Walter Barnum from the treasurership to the presidency of the Pacific Coast Co. is announced at the offices of the company, 250 Park Avenue, New York. The new president succeeds his father, William N. Barnum, who becomes chairman of the board of directors.

The Pacific Coast Co. operates extensive coal properties in Washington, and among its recent acquisitions is the Carbonado Mine. Other properties include the Pacific Coast R.R. and ships, together with terminal facilities and docks at the port of Seattle.

Mr. Barnum is well known to the coal industry, not only on the Pacific Coast, the scene of the mining operations, but also in the East, where he has served the interests of his company for many years in the capacity of treasurer, and later in the additional role of a director.

Since the National Coal Association was organized, in 1917, Mr. Barnum has been one of the foremost advocates of organized work within the industry, as reflected by his activities for the association, of which he is both a director and the chairman of the Membership Committee. The genius in organization work which Mr. Barnum displayed in his career at Yale University has been exemplified in his life's work on behalf of the industry.

cent of the country's capacity. In 1923 it was below 5 per cent.

There are, of course, other factors than wage rates involved in the rapid growth of the non-union fields. They have better coal and more favorable mining conditions. They have had the benefit of certain favorable freight rates, but even making full allowance for these facts it is clear that the rigid and relatively high wage rates of the union fields have set prices at a level which have encouraged the non-union development. The relative proportions of non-union and union production have changed from 35 to 65 per cent to 55 and 45 per cent respectively. If the present trend continues it is obvious that the time is not far distant when the non-union districts can supply the requirements of the country.

A block of the common stock of the Mahoning Coal Railroad Co., which is operated and controlled by the New York Central, has been purchased from private stockholders by Adams & Peck, of New York, and Biddle & Henry, of Philadelphia. The shares are being offered to the public. The road connects with the Pittsburgh & Lake Erie, forming the Central's only entrance into Pittsburgh, from which heavy traffic is handled over the Mahoning line.

Indiana Union Election "Shady"; Hessler Quits

John Hessler, Terre Haute, Ind., president of District No. 11, United Mine Workers, in a statement recently said that regardless of the outcome of the official tabulation of the recent election he will leave the presidency March 31. "The party who takes the office does so under the shadow of a corrupt election and I don't care to be mixed up in it. I leave office March 31, elected or not," said Hessler.

The executive board of District No. 11 completed a two-day session and sent out a call to all locals in the district to send in a second certified report of the recent election returns. The returns were to be sent to district headquarters at Indianapolis not later than March 10. Because of the alleged alterations in the results reported from twenty-two locals, officials said it would be impossible to get an accurate count on the results of the election with the returns already in.

Dave Jones, member of the executive board of the district, who, according to union officials, was accused, after an investigation by postal inspectors, of having opened envelopes containing returns of the voting, altered returns and resealed the envelopes, denied connection with the tampering. Jones offered his resignation to the board and it was accepted. Tyler G. Lawton, of Bicknell, candidate for district president and one of the candidates in whose favor the returns were said to have been changed, in a statement at his home Feb. 25, said: "If it is true, as reported from Terre Haute, that the reports have been tampered with, that is a matter for the district board and tellers to look into. I am ready to abide by the actual count of the vote as cast at the election Feb. 10." It is alleged that mail was opened in the offices of the miners.

It is said that changes were made in the figures on the official return sheets contained in each envelope, and the sheets then put back in the envelopes, which were again sealed and placed in the mail box.

Postal Inspectors Investigate

When Mitch went to his office he removed the envelopes from the box. Noticing that the seals on the envelopes apparently had been tampered with, he communicated with the postal authorities at Washington. Postal inspectors arrived early in the week to make an investigation. They worked secretly, obtaining exhibits of the handwriting of every official, every office employee and other persons connected with district headquarters.

Figures are said to have been changed in favor of Tyler G. Lawton, of Bicknell, over John Hessler for the office of president; in favor of T. L. Roberts, over Harvey Cartwright, of Bicknell, for the office of vice-president, and in favor of W. D. Van Horn over C. O. Webster for international board member. Changes were said to have been made on down the line on the return sheet, taking in practically all the offices voted on.

Hessler, Roberts, Mitch and others of the officials of the district declined to



Arthur Neale

Except for one year, while in the service of the Hocking Valley R.R. as engineer, and four years—1909 to 1913—with the Pennsylvania state inspection department, Mr. Neale, recently appointed general manager of mines of the Pittsburgh Coal Co., has been associated since 1898 with the latter company and others which were from time to time absorbed in various consolidations. From 1913 to 1920 Mr. Neale managed his company's properties in Illinois. When these were sold he was called back to Pittsburgh and appointed assistant general manager of mines.

make any statement regarding the matter, saying that a statement may be forthcoming following the closing of the discussion of the matter by the executive board.

Illinois Miners Strike Even In Times Like These

The entire crew of miners employed by the Illinois Coal Corporation at the new Nason (Ill.) mine went on strike March 5. An attempt was being made to negotiate a new wage scale by which this new mine could be taken out of its development era and put on a final basis. The men objected to any but their own ideas about wages and struck in violation of contract while negotiations were on. So the commission went home to await such time as the men can stay on the job during negotiations, as provided by contract. A certain obstreperousness of the union local has led the men to disregard advice from higher union officials. These men have been working steadily in the development of the mine for many months.

Philippine Mines Run at a Loss by Government

The coal mines of the Philippines, which have been run by the state for generations, are reported to be a sad loss. Recent reports show that it has cost \$18 a ton to mine coal that has been sold most of the time at \$10 a ton. Such is the way of government ownership and operation. The taxpayer makes up the deficit.

Three Reports Are Made on Sullivan Explosion

Three separate reports on the Sullivan (Ind.) mine explosion which killed 51 men in the City Coal Co.'s mine, Feb. 20, have been made following three investigations. One was by the county Coroner, the second by a committee of mining men headed by Bureau of Mines engineers and the Indiana chief mine inspector, and the third by a grand jury. The Coroner says a squeeze released gas that was ignited "by means unknown" and blames nobody. The engineers do not say where the gas came from, but report that flame lamps ignited it. The grand jury makes a set of recommendations to the Governor favoring legislation requiring rock dusting, stronger inspection measures and a few other things.

Following the three investigations it was generally held by men involved that whatever the source of the gas, whether from improperly chartered abandoned workings or not, it would be a good thing if more rigid measures were taken to drill ahead of cutting machines and to check up filed mine maps more closely. Without a doubt the propaganda for rock-dusting of mines was strongly advanced by the explosion also, because of the general belief that rock dust would have checked the spread of the explosion.

W. H. Williams to Address New England Dealers

W. H. Williams, senior vice-president, Hudson Coal Co., is scheduled as the principal speaker at the annual convention of the New England Coal Dealers' Association, to be held at Springfield, Mass., March 25-26. Other speakers include W. A. Clark, president of the retail organization, who will talk on "The Anthracite Industry and the Retail Coal Merchant," and R. H. Newcomb, assistant to the vice-president, New York, New Haven & Hartford R.R. The convention will open on Tuesday afternoon and a banquet and dance will wind up the first day's activities. The business sessions will be held in the Municipal Auditorium. As for several years past, an exhibition of retail coal-handling machinery will be staged in connection with the convention.

The John Fritz Gold Medal, which was awarded in January to John F. Stevens for great achievements as a civil engineer, particularly in planning and organizing for the construction of the Panama Canal; as a builder of railroads, and as administrator of the Chinese Eastern & Siberian Ry., will be presented with suitable ceremony in the auditorium of the Engineering Societies Building, New York City, on Monday, March 23 at 8:30 p.m. The speakers will be Ralph Budd, president of the Great Northern Ry., and Roland S. Morris, formerly Ambassador to Japan. John R. Freeman, member of the John Fritz Board of Award, will be chairman of the evening.

President Signs Bill for Topographic Map

President Coolidge on Feb. 27 signed the Temple bill authorizing \$950,000 for the first year's work on a twenty-year program which provides for the completion of the topographic map of the United States. The entire program calls for the expenditure of \$50,000,000. The complete map will consist of 6,000 sheets—enough to cover more than an acre.

Topographic mapping has proceeded very slowly in past years. As the country has developed the demand for exact physical survey of each square mile of the country's area has become more and more pressing. These surveys have been particularly needed in connection with highway and drainage development.

For forty-five years the U. S. Geological Survey has been doing just as much mapping as funds would allow, but because of their inadequacy only one-third of the country has been adequately mapped.

Congress was not particularly enthusiastic about embarking on a \$50,000,000 map-making program. For that reason particular credit is being given the American Engineering Council for having succeeded in getting the federal government to commit itself to such an undertaking. In the course of the legislation through Congress many obstacles had to be surmounted.

The bill which just has become a law is the enabling act. It authorizes but does not appropriate the necessary money. This act, however, paves the way for the appropriation at the next session of Congress.

35 Roads Seek to Block Ban On Private Cars

A bill in equity, signed by thirty-five railroads, attacking the order of the Interstate Commerce Commission prohibiting the use of private coal cars for the transportation of bituminous coal, was filed March 12 in the U. S. District Court at Philadelphia, Pa. The commission's order, it was averred, was illegal and arbitrary, and if allowed to stand would seriously hamper operation of the roads through making it difficult to obtain enough fuel for their locomotives.

Filing of the bill was part of a concerted move for nullification of the ban against private cars. A number of coal, coke and steel companies already have filed injunction suits for invalidation of the commission's order, and similar suits by a number of public-utility corporations are expected to follow. All will be grouped into one action to test the validity of the commission's ruling.

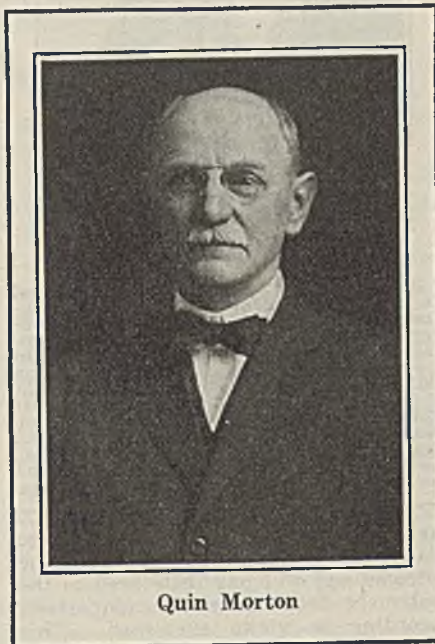
The bill declared that the ban on private cars had rendered inoperative the use of cars specially designed to meet the demands of the railroads. It was pointed out that at times the demand for commercial cars was such that without the use of private cars the railroads would be unable to operate as the law requires them to.

The following railroads are signatories to the bill: Akron, Canton & Youngstown; Atlanta & West Point;

Quin Morton Dies from Paralytic Stroke

Quin Morton, former president of the Kanawha Coal Operators' Association, died March 11 at Charleston, W. Va., from a paralytic stroke suffered a month ago. He was president of the American Eagle Coal Co. and Hopkins Fork Coal Co. and director in several other firms at the time of his death.

A native of Virginia, Mr. Morton went to West Virginia when a youth,



Quin Morton

and after conducting a general merchandise business in Ronceverte and serving for a time as cashier of the Bank of Ronceverte, he began his connection with the coal industry in 1896 as bookkeeper of the Turkey Knob Coal Co., in the New River field. In 1903 he organized the Morton Coal Co., with mines on Paint Creek, later selling this interest and becoming general manager of the Imperial Collieries Co. at Burnwell. In 1911 he organized the Christian Colliery Co., with mines at Mahan, Fayette County, and three years later organized the Imperial Coal Sales Co., leaving the operating field for the marketing end of the industry.

Mr. Morton was 67 years old, and is survived by two sons and three daughters.

Atlanta, Birmingham & Atlantic; Atlantic Coast Line; Baltimore & Ohio; Boston & Maine; Canadian National; Central New England; Central Railroad of New Jersey; Chesapeake & Ohio; Cleveland, Cincinnati, Chicago & St. Louis; Delaware & Hudson; Delaware, Lackawanna & Western; Elgin, Joliet & Eastern; Erie; Hocking Valley; Lehigh Valley; Louisville & Nashville; Michigan Central; Minneapolis & St. Louis; Missouri, Kansas & Texas; Nashville, Chattanooga & St. Louis; New York Central; New York, Chicago & St. Louis; New York, New Haven & Hartford; New York, Ontario & Western; Norfolk & Western; Pennsylvania; Pere Marquette; Pittsburgh & Lake Erie; Reading; St. Louis Southwestern; Virginian; Wabash, and Wheeling & Lake Erie.

Wants Virginian Ry. Linked With Ford's Road

Governor Trinkle of Virginia is in Washington to present to the Interstate Commerce Commission a petition of the Virginia State Corporation Commission protesting the proposed consolidation of the Virginian Ry. with the Chesapeake & Ohio or the Norfolk & Western. Either of these consolidations would be detrimental to the proper development of Hampton Roads, the Virginia commission's petition contends. A counter proposal that the Virginian be linked with Henry Ford's Detroit, Toledo & Ironton R.R. will be presented.

As an alternative to the counter proposal the Virginia commission will propose the merger of the Virginian with the New York Central system. The Interstate Commerce Commission will be asked to reopen that part of the consolidation proceedings which relates to Virginia.

The Virginia commission claims the primary interest of the proposed Van Sweringen consolidation, to include the Chesapeake & Ohio, "will lie in the development of the port of New York," and suggests that the policy of the Chesapeake & Ohio may be changed toward development of its coal traffic without "proper regard to the expansion of Hampton Roads' trade."

The proposed connection with the Detroit, Toledo & Ironton could be effected by the construction of a relatively small intermediate line between the termini of the two systems at Ironton, Ohio, and Deepwater, W. Va., the petition said.

S. D. Warriner to Speak at N. Y. Retailers' Meeting

Samuel D. Warriner, president of the Lehigh Coal & Navigation Co., will be one of the speakers at the seventh annual meeting of the New York section of the New York State Coal Merchants' Association, to be held at the Hotel Pennsylvania on Thursday, March 26. Mr. Warriner will discuss anthracite standards of preparation.

The meeting will open with a luncheon at 1 p.m., at which there will be a well-known speaker. The business session will begin at 2:15 o'clock with an address of welcome by Henry J. Lange, president of the Coal Merchants' Association of New York. Other speakers will include Roderick Stephens, vice-president, Stephens Coal Co., who will talk on "Costs of Degradation"; William F. May, who will talk on the oil problem; J. H. Tregoe, secretary, National Association of Credit Men, and Joseph J. Holwell, director of the Bureau of Weights and Measures, New York City.

In the evening at 6:30 o'clock the annual banquet of the association will take place.

The Massachusetts Commission on Administration and Finance, within the next 30 days, will call for bids covering the bituminous coal supplies for the various institutions of the Commonwealth. The commission will provide copies of specifications and bidding sheet for those wishing to bid.

Coronado Case's "Twin" Remanded for Trial

A mandate from the Eighth Circuit Court of Appeals reversing the \$300,000 judgment won by the operators against the miners on April 21, 1920, in the famous Pennsylvania Mining Co. suit against the United Mine Workers and remanding the case for further proceedings in accordance with the appeal court's decision was received in the federal court at Fort Smith, Ark., early in March.

The Pennsylvania case is similar to the Coronado case, which is now under consideration by the Supreme Court. Like the Coronado case, the Pennsylvania case involves charges under the Sherman anti-trust act. It involved alleged damages sustained during labor troubles at Jamestown, Ark., between 1910 and 1915. A judgment for \$300,000 was taken on April 21, 1920, and appealed by the defense. It has lain in the appeals court from that time until July, 1924, awaiting action on the Coronado case by the high court. The appeals court reversed and remanded it last July, but the mandate was withheld while the Pennsylvania Mining Co. attempted to appeal it to the Supreme Court. The high court recently refused to hear it, and the mandate from the appeals court to the trial court resulted.

Indiana Union Disturbed by Co-operative Mining

Co-operative mining has been stirring up quite a wrangle between officials of District No. 11, United Mine Workers (Indiana), and the union members who are attempting such ventures. John Hessler, president of the district, in statements issued during the week of March 9, practically admitted that the mines cannot be operated at a profit by the men if they obey the present wage agreement.

Some operators in Terre Haute are taking this to be additional proof that the wage agreement must be modified if they are to be able to operate their mines at a profit.

In a public statement, March 10, President Hessler said that if mines could not be operated profitably by owners, how could men expect to do so. He said it was not furthering the miners' cause any for union men to clean up a mine for nothing, in the hope of getting work, when they certainly would not clean it up for nothing at the request of an operator. He pointed out how frequently co-operative ventures fail and urged union men to desist trying such schemes.

Officials Not Encouraged

The stand taken by the officials of District 11 met with little encouragement in the Bicknell field, where two of the largest mines are being worked on a co-operative basis and the same method is being contemplated at other mines closed down for a period of several months.

It is pointed out that the Martin mine, idle for a solid year and many of the miners employed there supported through a commissary, is now working every day and the miners are



T. M. Dodson

Recently elected by the Pittsburgh Coal Co. as vice-president in charge of operations, succeeding J. A. Donaldson, who resigned. Mr. Dodson has been actively engaged during the last twenty-five years in the production of coal, both bituminous and anthracite. Mr. Dodson is vice-president of Weston Dodson & Co., Inc., the Locust Mountain Coal Co., the Charles M. Dodson Coal Co.; and president of the Shipman Coal Co., the Valley Smokeless Coal Co., the Garrett County Coal & Mining Co. and the Potomac Coal Operators' Association.

making money above the union wage scale. They are enthusiastic over the outcome and will pay little heed to the statement from district headquarters, according to views expressed. This mine is now employing 150 men.

The Columbia mine, employing 100 men, has been operated on a co-operative basis for more than a year and has been giving work to this number of men who otherwise would have remained idle.

President Hessler in reply March 12, said the men in such mines are not getting the full scale and that the mines they work merely take business from other mines that pay the scale.

Connellsville Plants Reduce Wages

Wages at the independent operations of the Connellsville coke region of Pennsylvania were reduced to a day labor rate of \$5 a day March 16, the companies having announced the cut late last week. These companies raised wages on Dec. 15 to the scale of Sept. 1, 1920.

The companies which placed the reduction in effect are the Hillman Coal & Coke Co., the Orient Coal & Coke Co., the Thompson-Connellsville Coal & Coke Co., the Hecla Coal & Coke Co., the Tower Hill Coal & Coke Co., the Washington Coal & Coke Co., the Oliver & Snyder Steel Co., the Connellsville Central Coal & Coke Co., and the Mt. Pleasant Coal & Coke Co. The H. C. Frick Co. will not change its present wage of \$7.50 a day, it is said.

Bring Your Perplexities To Cincinnati!

The American Mining Congress is hard at work on the plans for its yearly meeting devoted to cost-cutting methods in coal operation in Cincinnati, May 25 to 29, at which time and place the National Exposition of Coal Mining Equipment and Machinery will be staged. Every mine owner should be at Cincinnati with his operating officials, for no better opportunity is provided for the discussion of his problems from the standpoint of cost reduction. At his leisure he can mill around the exposition booths and have explained to him in detail the latest mine equipment with which he can modernize his mine and cut his costs.

The meeting is being arranged strictly for operators—anthracite and bituminous. Anthracite operating men will appear on the program, which is being arranged by a committee of operating men. These men have been meeting and corresponding with each other for the last several weeks. To the committee, which is headed by W. L. Affelder, assistant to the president of the Hillman Coal & Coke Co., the following have been added: H. Foster Bain, director U. S. Bureau of Mines, Washington, D. C.; J. E. Layne, Jr., secretary Eaton Rhodes Co., Cincinnati, Ohio; Graham Bright, consulting engineer, Pittsburgh, Pa.; A. C. Callen, department of mines, University of Illinois, Urbana, Ill.; C. E. Leshner, assistant to the president, Pittsburgh Coal Co., Pittsburgh, Pa., and Phil Penna, secretary of the Indiana Bituminous Coal Operators' Association, Terre Haute, Ind. Other operating men are being consulted and will be added to the committee.

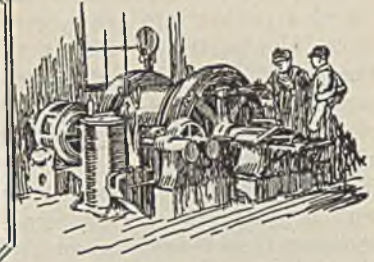
Outstanding problems will be discussed in a practical way with a view to reducing the costs of mine operation. Great care is being taken by the committee to pick the right man for the right place on the program. Operating men and engineers whose names are familiar to all of us will take the floor in Cincinnati.

Two sessions will be devoted to mechanical and electrical problems. That is why the master mechanic and mine electrician, to say nothing of the mechanical and electrical engineer, should attend the meeting. Four sessions (two whole days) are to be devoted to a study of mechanical loaders, conveyors and modern mine methods and layouts. Great strides along these lines have been made during the last year, and those who brought about these advances will be in Cincinnati to tell those present about them. Graphic charting of mine costs will take up another session; practical pointers in, and costs of, rock dusting (no theory) will be dealt with in another session, and in the final session the discussion will center on preparation methods at the face and on the tippie.

Last year over 3,000 operating men attended the May meeting of the congress in Cincinnati. Because a greater interest is being shown this year than last, the attendance should be larger. No semblance of commercialism will pervade any of the sessions.



Practical Pointers For Electrical And Mechanical Men



Brass Furnace Constructed at Shop Fills Coal-Mine Needs

A foundry or anything akin to it is seldom found at even the larger coal mines, yet if the mine shops were able to make castings of small to medium size it often would be extremely convenient and in many instances would save both time and money. To obtain much of this benefit, however, a full-fledged foundry is not necessary—a suitable furnace and a few crucibles and flasks will answer the purpose.

The furnace shown in the accompanying illustration has been built and used for several years in the yard beside the shops of the United States Coal & Coke Co., at Gary, W. Va. This is the second furnace of this kind that has been constructed at this plant and embodies several improvements in design and construction over its predecessor which was built primarily to meet an

emergency. It proved so useful, however, that it remained in use for a long time or until it was practically worn out in service, after which the one here shown was constructed.

The dimensions on the accompanying drawing are approximate and not exact, the desire being rather to convey a fairly accurate idea of how such a furnace may be built than to present a complete working drawing. The walls of this furnace below ground are of concrete and where they come in contact with the fire or with hot gases are lined with firebrick. In this case old firebrick from boilers were used. The drawing is sufficiently complete to need little further explanation except to say that pieces of 20-lb. rails with their flanges trimmed off are used as grate bars, and the stack is a piece of 12-in. pipe which rests upon and



A Miniature Foundry

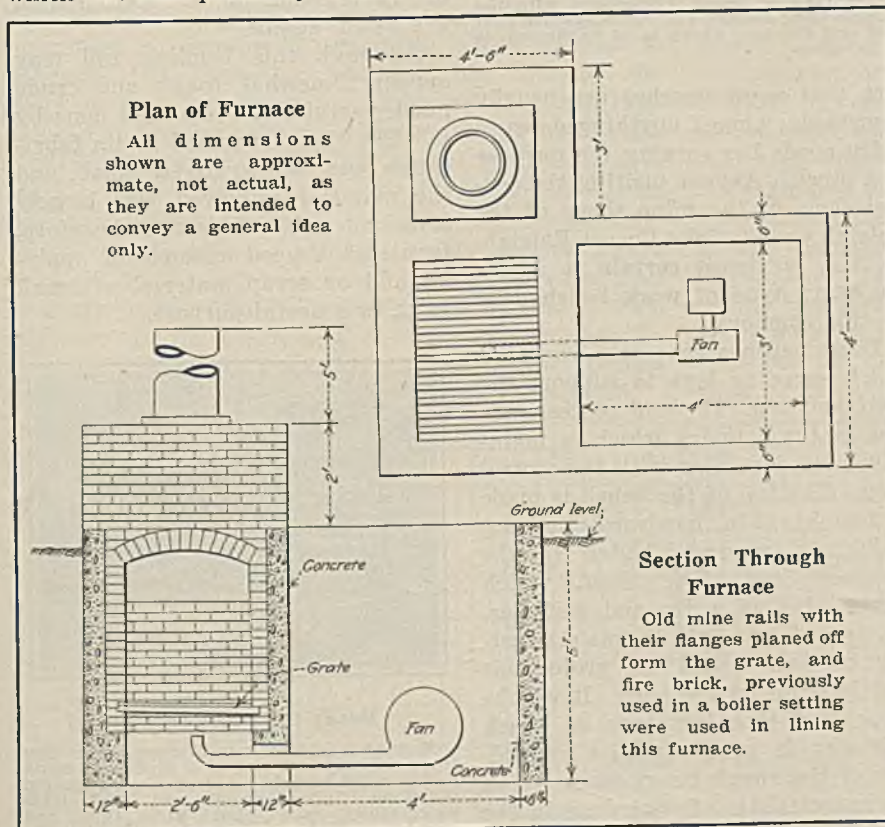
A cupola is unnecessary for much of the small work—particularly brass and bronze—that advisably can be done about the mine shop. This little furnace, most of which is below ground, can be used for melting both brass and iron, although it originally was intended for the former metal only.

is screwed into an ordinary flange at the base.

Coke is used exclusively as fuel. Draft is supplied by an electric forge blower, which, at night or when the furnace is not in use may be taken up and carried into the shop. This blowing unit weighs only 35 lb. and draws current from the nearest light socket. The blast produced is conducted to a point under the grate where the blast pipe is turned up so as to deliver the air vertically. The velocity of the air through the furnace is regulated by a piece of plate laid on top of the pipe chimney.

The largest crucible used with this furnace is No. 125, which has a capacity of 44 pints of molten metal. Crucibles Nos. 60 and 90, with capacities of 24 and 38 pints respectively, are also used.

Although iron castings are sometimes made with this furnace, lightweight scrap cast iron broken into small pieces being used for melting, it is employed chiefly for casting brass and bronze. The metal used in such a case is compounded or alloyed to suit the requirements. For this purpose old or scrap brass, old copper wire, pig tin, zinc and aluminum

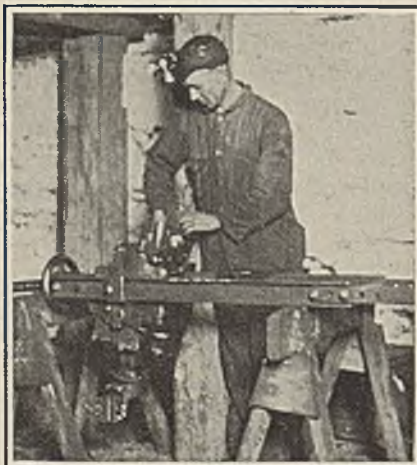


are employed. The metal thus compounded is cast into gears, gear and worm blanks, trolley wheels and an almost endless variety of brass bearings and bushings, feed nuts and other mechanical and electrical parts of all sizes and weights up to the capacity of the biggest crucible. Not infrequently better service is obtained from these home-made parts than can be obtained from spares bought in the open market or purchased from the manufacturer of the equipment in which they are used.

Two important objects are attained by using a furnace of this kind. First, necessary machine and electrical parts of small to medium size can be made when and as desired. Second, scrap material, such as old wire, possessing small market value is put to a useful purpose. A third and sometimes transcendent consideration is the fact that parts can be made quickly, saving the delay incident to securing them from some remote market or manufacturer.

Facilitates Repairs and Drains Stray Oil

The accompanying illustration is from a photograph taken inside Mine No. 20 of the Island Creek Coal Co., at Whitmans, W. Va. Mine electrician Rush Runyon is seen inspecting an electric coal drill which the crew has returned to the underground shop and placed on wooden horses. It is a part of the regular duty of the drill crew to place the machine in this position at the end of each shift. It is always hung with the chuck down so as to drain from the armature and field coils any oil which might have worked its way into the motor, while in use.



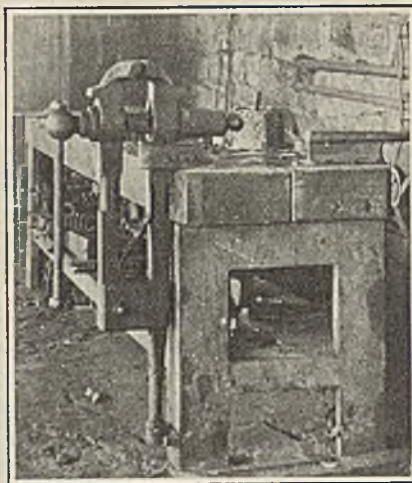
Convenient Position for Testing

At the end of each shift the crew places the electric coal drill in this position, which practice tends to drain stray oil from the motor and aids the lone repairman.

Having the drill placed on horses by the operating crew has other advantages. It is one of the practices which makes it possible for the mine electrician to accomplish his work, for the most part, without a helper. The drill is in a convenient position for inspection and testing, also for such repairing as may be found necessary.

Sturdy Bench for Use in Mine Repair Shop

Good work benches are of first importance in any shop, yet at many mines the work bench is the poorest item of the repair equipment. This condition is brought about by the



Ruggedness and Stability

This type of bench is standard with the Raleigh Coal & Coke Co. The legs are cast iron and the top, which is of hardwood, is 5½ in. thick.

fact that work benches are usually homemade; almost anything down to a dry goods box serving the purpose in a pinch. Anyone visiting the central shop, or the mine shops of the Raleigh Coal & Coke Co., at Raleigh, W. Va., is almost certain to notice the heavy type of work bench used by this company.

These benches have cast-iron ends which serve as legs to support the shelf and top. The end pieces were cast in the foundry which is maintained in connection with the central shop. The top of the bench is made of two 5½x12-in. hardwood timbers, which are securely bolted to the cast-iron legs. The shelf, which serves also as a tie and stiffener, consists of two 3x12-in. planks resting on and bolted to, projections cast integral on the legs. It will be recognized that this type of bench will stay in good condition regardless of the rough heavy work which is characteristic of that done in the mine repair shop.

With Shop Scrap Construct Useful Bending Roll

In the machine shops connected with mining plants, steel plates frequently have to be bent to some desired shape, which is a difficult undertaking unless proper tools and appliances for this kind of work a hand.

The accompanying illustration shows a home-made bending roll built and used at the shops of a large coal-mining company in West Virginia. The three rolls employed in this device are turned from old shafting and are each 4½ in. in diameter and 6 ft. 8 in. long in the clear or between the end frames. The front two rolls are back-gearred from the hand crank on the front end and geared to each other on the rear end. The back or rear roll is carried on 1½-in. jack screws and can be thus raised or lowered to any desired position.

In this machine the centers of the rolls are 10½ in. apart. This is admittedly too far to give best results and if another machine were to be built by the same people who constructed this one, this distance would be lessened somewhat. The end frames are built up of angles and plates, and the rolls turn in flanged bushings slipped over their turned-down ends and riveted in place. The two ends of the frame are cross-braced together on the bottom with ½ x 2½-in. straps.

Although this bending roll may appear somewhat rough and crude much useful work has been done by it. The time consumed in its fabrication was comparatively small, and the material employed was largely odds and ends. This roll therefore, furnishes a good example of applying old or scrap material of small value to a useful purpose.



Ready for Plate Bending

This plate roll was built some years ago from old material and of a kind that could be classified largely as scrap, found around the shop. It will handle and bend plates successfully up to about 8 in. thick and has proved itself an extremely useful adjunct to the mine shops.



Production And the Market



Tendency to Weakness Increases Steadily In Bituminous Coal Market

The recent tendency toward weakness in the bituminous coal market seems to be increasing. As mine after mine closes down in Illinois, Orient No. 1 having joined the idle ones, the miners wonder which will be the next to quit. Domestic grades are weaker than ever, with prices falling further, the slight stiffness in steam coals being insufficient to make up for the general softness in other sizes. Lack of market and low prices are causing a steady curtailment of production by Kentucky mines and general gloom prevails, some reports having it that business is slower than at any other time in the history of the field. Many of the operations in West Virginia are marking time as prices are low and demand for both high- and low-volatile coal less than at any time in the last year.

Milder weather has caused a falling off in activity at the head of the lakes, but the dock interests expect to clean up the 637,000 tons remaining before navigation opens, late in April or early in May. Incidentally the dock men are cheered by the advance in rail rates from West Virginia, eastern Kentucky and Illinois, which goes into effect March 23. Domestic demand is light at Milwaukee, but a steady call from industrial consumers is cleaning up the docks. Mild weather in Colorado, Utah and the Southwest has curtailed demand to such an extent that running time has been reduced and prices have weakened except on screenings.

Warm weather and unstable market conditions have put the coal trade in Cincinnati up in the air to an extent unparalleled in the last decade. Buyers have developed the bargaining habit so keenly that producers complain that prices are below production cost. All lines are dull in the Columbus, Cleveland and Buffalo markets. In the absence of any real open-market demand at Pittsburgh prices have taken another tumble and running time has receded to around 35 per cent.

Trade in New England continues at a disappointing level, demand being anything but stable and prices far from firm. In some respects the outlook is as discouraging as at any time since September. Interest is almost totally lacking in the trade at New York, Philadelphia and Baltimore. Commercial and industrial demand for steam coal is still fairly good at Birmingham, but the domestic trade is stagnant.

With the opening of the lake trade still more than a month off one of the chief points of interest is the placement of railway fuel orders. While some have placed contracts a number show a disposition to await the result of the operators' conference at Cleveland.

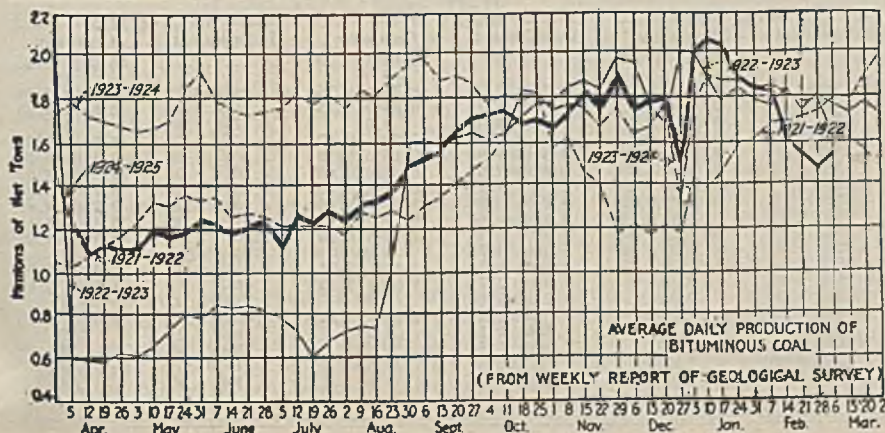
Anthracite Trade Shot to Pieces

Continued mild weather has shot to pieces what little business there was in hard coal. Interest now centers chiefly in the probable action of the companies on prices beginning April 1. A decision is momentarily expected also on the proposal to change certain sizes and to eliminate some. All sizes are moving slowly and independent prices are weak.

Coal Age Index of spot prices of bituminous coal on March 16 stood at 165 the corresponding price of which is \$1.99, compared with 167 and \$2.02 the week before.

Dumpings of coal for all accounts at Hampton Roads in the week ended March 12 totaled 387,348 net tons, compared with 403,712 tons in the previous week.

Production of bituminous coal ceased its steady decline during the week ended March 7, when, according to the Geological Survey, output was estimated at 9,394,000 net tons. This compares with 8,855,000 tons in the preceding week, as shown by revised figures. Anthracite output in the week ended March 7 was 1,655,000 net tons, compared with 1,605,000 tons the week before.



Estimates of Production

(Net Tons)		
BITUMINOUS		
	1923-1924	1924-1925
Feb. 21.....	10,697,000	9,464,000
Feb. 28 (a).....	11,061,000	8,855,000
Mar. 7 (b).....	9,944,000	9,394,000
Daily average.....	1,658,000	1,566,000
Coal yr. to date (c)...	529,173,000	442,696,000
Daily av. to date.....	1,851,000	1,545,000
ANTHRACITE		
Feb. 21.....	1,655,000	1,838,000
Feb. 28.....	1,866,000	1,605,000
Mar. 7 (b).....	1,882,000	1,655,000
Coal yr. to date.....	85,611,000	82,805,000
COKE		
Feb. 28 (a).....	319,000	254,000
Mar. 7 (b).....	326,000	244,000
Cal. yr. to date (c)....	2,665,000	2,469,000

(a) Revised since last report. (b) Subject to revision. (c) Minus one day's production to equalize number of days in the two years.

Midwest Weakens Still More

The general weakness in all domestic coal's in the Middle West asserted itself more effectively than ever during the week, driving down prices in many quarters. Central Illinois dropped lump from \$3 to \$2.50 on the circular, which put the prevailing price about in line with what was running on the market at the time. Although circulars on lump from other districts were not officially cut, the going prices on the small tonnage that moved tended strongly downward and official reductions are expected momentarily. Steam in Illinois and Indiana held up well and Kentucky steam coals moving into the Chicago district stiffened a trifle, but this slight improvement in no wise compensated for the disheartening prices on all other sizes.

A peculiar quietness has settled down over the Williamson and Franklin County fields as well as the Harrisburg field. The miners are laying little bets among themselves as to which mine will be the next to go down and there is considerable talk among them of trying to make the mines that are working divide the work between all the miners in those particular towns so that one miner will not be any better off than the other. Of course the miners who have steady jobs are opposing this. The shut down of Orient No. 1 mine March 16 was a blow to the district, merely pre-saging the general sag that is coming.

The only thing that is moving now is screenings. Lump, egg and nut have stopped and there is practically nothing doing and the tracks are full of coal. Three days a week is good working time. Most mines that work at all are getting one and two days. Railroad tonnage has eased off. The strip mines seem to be making considerable headway. They are working full time and are finding a somewhat ready market, but the prices they are getting are close to cost of production and this is about \$1 a ton under the deep-shaft coal.

In the Duquoin field conditions are similar and prices here are in line with the independent prices in the Carterville field, which are somewhat below the association mine prices. In the Mt. Olive district conditions are bad and all mines have "no bills" and are behind on screenings for contracts; the prospects for this district do not look good. In the Standard field there is demoralization. Lump coal is down to \$2 and screenings are anywhere from \$1.50 to \$1.75 with a good demand ahead and no supply assured. Railroad tonnage in this field is fairly good, considering. Some mines get one day a week and some as many as three. Of the seventy-nine mines reported working last month, some are closing almost daily and it is doubtful if more than half of them will be in operation by April 1.

In St. Louis domestic business has fallen off completely. The yards are pretty well loaded with coal and the trade is

Current Quotations—Spot Prices, Bituminous Coal—Net Tons, F.O.B. Mines

Low-Volatile, Eastern				Midwest							
	Market Quoted	Mar. 17, 1924	Mar. 2, 1925	Mar. 9, 1925	Mar. 16, 1925†	Market Quoted	Mar. 17, 1924	Mar. 2, 1925	Mar. 9, 1925	Mar. 16, 1925†	
Smokeless lump.....	Columbus.....	\$3.85	\$3.60	\$3.60	\$3.00@3.25	Franklin, Ill. lump.....	Chicago.....	\$2.85	\$3.10	\$3.10	\$3.00@3.25
Smokeless mine run.....	Columbus.....	2.10	1.90	1.90	1.75@2.10	Franklin, Ill. mine run.....	Chicago.....	2.35	2.35	2.35	2.25@2.50
Smokeless screenings.....	Columbus.....	1.55	1.15	1.15	1.10@1.25	Franklin, Ill. screenings.....	Chicago.....	2.00	1.90	2.00	2.00@2.25
Smokeless lump.....	Chicago.....	3.60	3.10	3.10	3.00@3.25	Central, Ill. lump.....	Chicago.....	2.60	2.85	2.85	2.60
Smokeless mine run.....	Cincinnati.....	2.20	1.75	1.75	1.50@2.00	Central, Ill. mine run.....	Chicago.....	2.10	2.20	2.20	2.15@2.25
Smokeless mine run.....	Cincinnati.....	3.25	3.25	3.25	3.00@3.50	Central, Ill. screenings.....	Chicago.....	1.70	1.85	1.90	1.80@2.00
Smokeless screenings.....	Cincinnati.....	2.25	2.00	2.00	2.00	Ind. 4th Vein lump.....	Chicago.....	2.85	2.85	2.85	2.75@3.00
*Smokeless mine run.....	Boston.....	4.65	4.30	4.30	4.25@4.40	Ind. 4th Vein mine run.....	Chicago.....	2.35	2.35	2.35	2.25@2.50
Clearfield mine run.....	Boston.....	2.10	2.05	1.95	1.75@2.20	Ind. 5th Vein lump.....	Chicago.....	1.85	1.80	1.95	1.90@2.00
Cambria mine run.....	Boston.....	2.60	2.25	2.30	2.10@2.50	Ind. 5th Vein mine run.....	Chicago.....	2.10	2.10	2.10	2.00@2.25
Somerset mine run.....	Boston.....	2.35	2.05	2.10	1.90@2.35	Ind. 5th Vein screenings.....	Chicago.....	1.70	1.60	1.80	1.75@1.85
Pool 1 (Navy Standard).....	New York.....	3.00	2.65	2.65	2.50@2.85	Mt. Olive lump.....	St. Louis.....	2.85	2.85	2.85	2.75@3.00
Pool 1 (Navy Standard).....	Philadelphia.....	3.00	2.80	2.70	2.60@2.85	Mt. Olive mine run.....	St. Louis.....	2.50	2.35	2.35	2.25@2.50
Pool 9 (Super. Low Vol.).....	Baltimore.....	2.20	2.25	2.25	2.00@2.25	Mt. Olive screenings.....	St. Louis.....	1.55	1.75	1.75	1.75
Pool 9 (Super. Low Vol.).....	Philadelphia.....	2.30	2.20	2.05	1.90@2.25	Standard lump.....	St. Louis.....	2.70	2.50	2.50	2.50
Pool 9 (Super. Low Vol.).....	Baltimore.....	2.30	1.85	1.85	1.85@2.20	Standard mine run.....	St. Louis.....	1.95	1.80	1.80	1.75@1.85
Pool 10 (H.Gr. Low Vol.).....	New York.....	1.95	1.75	1.75	1.75@2.20	Standard screenings.....	St. Louis.....	1.30	1.40	1.40	1.35@1.75
Pool 10 (H.Gr. Low Vol.).....	Philadelphia.....	1.85	1.85	1.70	1.65@1.90	West Ky. block.....	Louisville.....	2.85	2.25	1.85	1.75@2.00
Pool 10 (H.Gr. Low Vol.).....	Baltimore.....	1.90	1.70	1.70	1.65@1.85	West Ky. mine run.....	Louisville.....	1.70	1.35	1.35	1.25@1.50
Pool 11 (Low Vol.).....	New York.....	1.40	1.55	1.55	1.40@1.70	West Ky. screenings.....	Louisville.....	1.30	1.25	1.25	1.25@1.30
Pool 11 (Low Vol.).....	Philadelphia.....	1.65	1.65	1.55	1.50@1.60	West Ky. block.....	Chicago.....	2.60	2.35	2.00	1.75@2.00
Pool 11 (Low Vol.).....	Baltimore.....	1.75	1.50	1.50	1.45@1.85	West Ky. mine run.....	Chicago.....	1.35	1.35	1.35	1.16@1.36

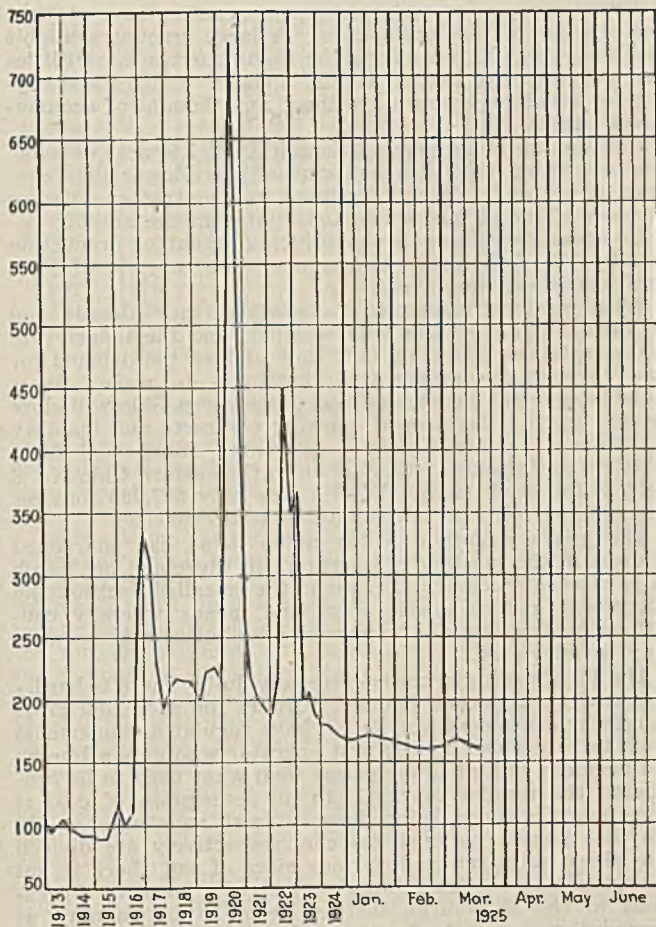
High-Volatile, Eastern				South and Southwest							
	Market Quoted	Mar. 17, 1924	Mar. 2, 1925	Mar. 9, 1925	Mar. 16, 1925†		Market Quoted	Mar. 17, 1924	Mar. 2, 1925	Mar. 9, 1925	Mar. 16, 1925†
Pool 54-64 (Gas and St.).....	New York.....	1.50	1.50	1.50	1.40@1.65	Big Seam lump.....	Birmingham.....	2.60	2.25	2.60	2.50@3.00
Pool 54-64 (Gas and St.).....	Philadelphia.....	1.60	1.50	1.45	1.40@1.50	Big Seam mine run.....	Birmingham.....	1.80	1.75	1.75	1.50@2.00
Pool 54-64 (Gas and St.).....	Baltimore.....	1.85	1.65	1.65	1.65@1.75	Big Seam (washed).....	Birmingham.....	2.10	1.75	1.85	1.75@2.00
Pittsburgh sc'd gas.....	Pittsburgh.....	2.55	2.50	2.50	2.30@2.60	S. E. Ky. block.....	Chicago.....	2.85	2.60	2.35	2.00@2.60
Pittsburgh gas mine run.....	Pittsburgh.....	2.30	2.20	2.20	1.95@2.10	S. E. Ky. mine run.....	Chicago.....	1.85	1.50	1.50	1.65@1.60
Pittsburgh mine run (St.).....	Pittsburgh.....	2.10	1.95	1.95	1.75@1.90	S. E. Ky. block.....	Louisville.....	3.00	2.35	2.25	2.00@2.50
Pittsburgh slack (Gas).....	Pittsburgh.....	1.45	1.30	1.30	1.25@1.35	S. E. Ky. mine run.....	Louisville.....	1.75	1.35	1.35	1.25@1.50
Kanawha lump.....	Columbus.....	2.55	2.35	2.10	2.00@2.25	S. E. Ky. screenings.....	Louisville.....	.95	.90	1.00	.90@1.10
Kanawha mine run.....	Columbus.....	1.50	1.50	1.50	1.40@1.60	S. E. Ky. block.....	Cincinnati.....	2.85	2.35	2.10	2.00@2.25
Kanawha screenings.....	Columbus.....	1.05	.75	.55	.50@.65	S. E. Ky. mine run.....	Cincinnati.....	1.45	1.40	1.35	1.25@1.50
W. Va. lump.....	Cincinnati.....	2.85	2.10	2.05	1.85@2.25	S. E. Ky. screenings.....	Cincinnati.....	.85	1.05	1.10	1.00@1.25
W. Va. gas mine run.....	Cincinnati.....	1.40	1.35	1.35	1.25@1.50	Kansas lump.....	Kansas City.....	4.50	4.75	4.25	4.00@4.50
W. Va. steam mine run.....	Cincinnati.....	1.40	1.25	1.30	1.25@1.35	Kansas mine run.....	Kansas City.....	3.25	3.10	3.00	2.75@3.25
W. Va. screenings.....	Cincinnati.....	.85	1.00	1.05	1.00@1.10	Kansas screenings.....	Kansas City.....	2.50	2.50	2.50	2.50@2.75
Hooking lump.....	Columbus.....	2.55	2.40	2.35	2.25@2.50						
Hooking mine run.....	Columbus.....	1.85	1.50	1.50	1.35@1.60						
Hooking screenings.....	Columbus.....	1.05	1.10	1.10	.60@1.15						
Pitts. No. 8 lump.....	Cleveland.....	2.30	2.30	2.30	1.90@2.75						
Pitts. No. 8 mine run.....	Cleveland.....	1.80	1.80	1.80	1.75@1.85						
Pitts. No. 8 screening.....	Cleveland.....	1.30	1.30	1.40	1.30@1.40						

*Gross tons, f.o.b. vessel, Hampton Roads. †Advances over previous week shown in heavy type; declines in italics.
 ‡ The term block is used instead of lump in order to conform to local practice, but the same coal is being quoted as heretofore.

Current Quotations—Spot Prices, Anthracite—Gross Tons, F.O.B. Mines

	Market Quoted	Freight Rates	March 17, 1924		March 9, 1925		March 16, 1925†	
			Independent	Company	Independent	Company	Independent	Company
Broken.....	New York.....	\$2.34		\$8.00@9.25		\$8.00@9.25		\$8.00@9.25
Broken.....	Philadelphia.....	2.39		9.15		9.15		9.15
Egg.....	New York.....	2.34	\$7.75@8.25	8.75@9.25	\$8.25@8.75	8.75@9.25	\$8.25@8.75	8.75@9.25
Egg.....	Philadelphia.....	2.39	8.50@10.00	8.75@9.25	8.90@9.25	8.80@9.25	8.65@9.15	8.80@9.25
Egg.....	Chicago*.....	5.06	7.50@8.80	8.00@8.35	8.17@8.40	8.08	8.17@8.40	8.08
Stove.....	New York.....	2.34	9.25@9.75	8.75@9.25	8.75@9.25	9.00@9.50	8.75@9.00	9.00@9.50
Stove.....	Philadelphia.....	2.39	9.85@11.00	8.90@9.25	9.35@9.90	9.15@9.50	8.90@9.65	9.15@9.50
Stove.....	Chicago*.....	5.06	7.95@9.25	8.00@8.35	8.30@9.00	8.53@8.65	8.80@9.00	8.53@8.65
Chestnut.....	New York.....	2.34	9.25@9.75	8.75@9.25	8.50@9.25	8.75@9.40	8.75@9.00	8.75@9.40
Chestnut.....	Philadelphia.....	2.39	9.85@11.00	8.90@9.25	9.25@9.80	9.25@9.40	8.90@9.65	9.25@9.40
Chestnut.....	Chicago*.....	5.06	7.95@9.25	8.00@8.35	8.61@9.00	8.40@8.41	8.61@9.00	8.40@8.41
Pea.....	New York.....	2.22	4.75@5.25	6.15@6.65	4.50@5.50	5.50@6.00	4.50@5.00	5.50@6.00
Pea.....	Philadelphia.....	2.14	4.75@6.50	6.35@6.60	5.00@5.75	6.00	4.75@5.75	6.00
Pea.....	Chicago*.....	4.79	4.50@5.60	5.40@6.05	5.36@5.75	5.36@5.95	5.36@5.75	5.36@5.95
Buckwheat No. 1.....	New York.....	2.22	2.25@3.00	3.50	2.00@2.75	3.00@3.15	2.00@2.75	3.00@3.15
Buckwheat No. 1.....	Philadelphia.....	2.14	2.25@3.00	3.50	2.25@3.00	3.00	2.25@3.00	3.80
Rice.....	New York.....	2.22	1.75@2.25	2.50	1.80@2.25	2.00@2.25	1.85@2.25	2.00@2.25
Rice.....	Philadelphia.....	2.14	1.75@2.25	2.50	1.70@2.25	2.25	1.70@2.25	2.25
Barley.....	New York.....	2.22	1.50@1.75	1.50	1.30@1.50	1.50	1.30@1.50	1.50
Barley.....	Philadelphia.....	2.14	1.25@1.50	1.50	1.50	1.50	1.50	1.50
Birdseye.....	New York.....	2.22	1.60@1.75	1.60	1.35@1.60	1.60	1.35@1.60	1.60

* Net tons, f.o.b. mines. †Advances over previous week shown in heavy type; declines in italics.



Coal Age Index of Spot Prices of Bituminous Coal F.O.B. Mines

	1925		1924	
	March 16	March 9	March 2	March 17
Index	165	167	169	179
Weighted averaged price...	\$1.99	\$2.02	\$2.04	\$2.16

This diagram shows the relative, not the actual, prices on four-teen coals, representative of nearly 90 per cent of the bituminous output of the United States, weighted first with respect to the proportions each of slack, prepared and run-of-mine normally shipped, and, second, with respect to the tonnage of each normally produced. The average thus obtained was compared with the average for the twelve months ended June, 1914, as 100, after the manner adopted in the report on "Prices of Coal and Coke; 1913-1918," published by the Geological Survey and the War Industries Board.

hoping for another cold spell or two before the latter part of the month. Domestic business in the country is absolutely at a standstill. There is no demand at this time for smokeless, anthracite or coke anywhere, which is a trifle unusual. Wagonload steam has eased off, while carload steam is good and is in demand, but country steam is unusually quiet.

A recent investigation developed that in the past two years one oil-burner company has put almost seven hundred oil burners in operation in St. Louis and this is one of the smaller and lesser known concerns. This is what has seriously affected the better class of the retail trade.

Kentucky Is Very Dull

A rather gloomy situation prevails in the Kentucky coal trade as a result of lack of market and low prices. Production is being steadily curtailed, and it is reported from the Harlan section that commercial mines there are operating only about two days a week with many down completely, and prices are so low that there is no margin of profit. It also was stated that coal was standing on tracks for days at a time. A report from Barbourville, in eastern Kentucky, also stated that coal was moving so slowly, empty cars in such small demand and railroads were having such trouble finding siding space for coal cars that no demurrage is now being charged on loaded cars on mine tracks. In this report it was asserted that business was duller than at any previous time in the history of the field.

Prepared coal sizes continue rather draggy, but there has been fairly steady demand for steam coal, and as a result of smaller production of screenings prices are higher

and offerings light. West Kentucky is asking \$1.25 a ton and up for screenings, and eastern Kentucky while quoting some screenings at 90c., is really asking \$1 and up. Mine run in both fields is \$1.25@\$.1.50 and nut \$1.50@\$.1.75, with egg at around \$1.65@\$.2. Lump coal starts at \$1.75 and goes to \$2.15, with block coal at \$1.75@\$.2 in western Kentucky and \$2@\$.2.25 in eastern Kentucky, where some operators are asking up to \$2.50.

Western Kentucky strip mines appear to be busy, in spite of 1917 wage scale in non-union mines.

There has been nothing to alter the situation which keeps many of the mines in West Virginia marking time and which keeps prices on an extremely low level. The demand for both high- and low-volatile coals is at extremely low ebb, much more so than has been the case at any time during the last year and even with production greatly reduced as compared with January.

Virginia mines are working on a more limited basis than a short time ago owing not only to a decrease in spot demand but also to a falling off in contract shipments, so that production has fallen much below 200,000 tons a week and dullness is somewhat more general in the field, with "no market" losses heavier than they have been for some time.

There is comparatively little variation in the production figures for western Maryland and Upper Potomac territories as compared with the previous week.

Northwest Trying to Clean Up

Stocks on docks at the Head-of-the-Lakes now total 2,800,000 tons of bituminous, according to an official report made at Duluth March 1, and of this amount 1,300,000 tons belong to the railroads and 863,000 tons are under contract. This leaves 637,000 tons to be disposed of before the opening of navigation, and it is thought that the docks will practically clean up.

Navigation will open, it is expected, the last week in April or the first in May. Of course, this depends in the main upon the ice in the lake, which is very heavy at present, but those who are familiar with weather conditions in these parts look for an early spring.

Shipments from Lake Superior docks last month totaled 657,000 tons, which compares with more than 1,000,000 tons in January. The milder weather has caused a falling off in shipments, and trade is not good now.

Industries and dealers are buying hand to mouth, as they do not wish to be caught with coal on their hands when the new supply comes in, as it seems that new coal may be cheaper. A cut of 25c. in screenings was recorded during the week. There is no change in other sizes or in hard coal.

Cheering news to the dock men is the advance in rates from West Virginia and eastern Kentucky fields to Twin Cities of 54c. which take effect March 23, and the advance of 48c. from Illinois June 19. Also it is hoped that the reduction of 21c. on coal from the mines to lower lake points will be put into effect by the opening of navigation. This will bring Youghioghenny down 21c. and Hocking down 18 cents.

The managers of Milwaukee coal docks consider the winter season of 1924-25 virtually at an end. They are looking forward to fresh receipts from down the lakes in a few weeks, and are clearing their docks with the steady demand from industrial sources and the waning needs of householders. The domestic demand is light just now, owing to soft weather. Prices remain unchanged.

A total of 102,963 tons of coal came into Milwaukee during the month of February by car ferry and over all-rail routes. The car ferries brought in 43,909 tons of bituminous coal and 15,531 tons of anthracite, a total of 59,440 tons. The all-rail lines brought in 42,421 tons of bituminous coal and 1,102 tons of anthracite, a total of 43,523 tons.

Western Business Slumps

These are dull days in the Southwest. Kansas shaft lump, which for a couple of weeks sold for \$4.50 after its initial break from \$5, now is quoted by many operators at \$4, while nut is off 25c. to \$3.75. Screenings, which have tightened as production of domestic grades has been reduced, are quoted by some at \$2.75. Kansas mines are working half time or less. There is virtually no production in Arkansas, while conditions in Oklahoma are similar to those in Kansas.

The continuation of warm weather in Colorado has materially affected the demand for all kinds of coal reducing

running time to some extent. Several more mines have closed for want of orders and it is said that the 1917 wage scale is being adopted by more mines throughout the state. There has been no change in coal prices from a week ago; but a change is expected the latter part of this month.

Representative operators in Utah describe the coal business as "rotten!" Mines are working less than two days a week. Industries outside of mining and smelting are taking very little coal. The mines, however, due to short working time, are a little short on slack. Lump coal has been moving more slowly than other sizes, but dealers are selling more of this grade again as a result of a few late snowstorms. For some weeks the weather has been almost summerlike, resulting in an almost complete collapse of the domestic-coal business. Prices continue firm. There is not even a rumor of a price cut on the part of dealer or operator anywhere.

Conditions Unstable at Cincinnati

Another week of warm weather and an unstable market at Cincinnati has taken the life out of the firmest of the sales operators. There has been nothing to parallel the situation for a decade. With production diminishing as records of full-time producers fall to one day a week there are complaints of "prices below the cost of production," but that does not matter to close bargainers. Those who prefer special coals, however, are willing to pay a fair price for them. Railway-fuel contracts, which are to be let soon, should be an index to year-around prices. Some industrial business has been closed between \$1.65 and \$1.85 for run of mine. Some, who see trouble coming in the union fields, are inclined to play the spot market still.

So far as bituminous is concerned the strongest place on the list is slack. The \$1 market still holds, but the domestic sizes have weakened proportionately. This is not shown in the spread of the price quotations, for these are \$1.85@ \$2.25, but there is more to be had at the low than at the high. Mine run is lifeless with a \$1.25@\$1.50 spread and that takes in everything from low to high grades. The egg market is sick with \$1.50 named as the price to the jobbers with 10c. for turnover. In some cases this prepared is going in on mine-run sales.

Smokeless business still languishes, though there has been a beneficial effect from the shutdown of one field and shortening of time in the other. If a slump in production is to cut any immediate figure it should show in this area quickest of all. Stronger efforts are being made around \$3 for lump and egg, though the old-line concerns are still holding out for their circular price of \$3.50. Mine-run is fairly firm around \$2 with a slight disposition to make concessions for spot sales. Generally speaking screenings are still on the \$1.50 basis.

There has been no change from last quotations on retail coal with the exception of bituminous slack. Some of the dealers who were caught short on this have quoted a spread of \$4.50@\$5 in order to protect themselves against the rising market.

The coal trade in Columbus continues dull in almost every respect. What little business comes from retailers is designed to piece out stocks for the remainder of the season, as householders are buying only in small lots. Pocahontas and other smokeless varieties are in the best demand with splints second as to preference. Outside of local points there is little demand for Ohio-mined grades and mining is at low ebb in all sections of the southern Ohio field.

Steam business continues quiet and featureless. Buying for stocking is entirely lacking as most of the reserves are normal or better. Many of the larger users are looking for bargains in distress coal. There is not as much de-

murrage coal as formerly, as many operators have stopped the practice of consigning cars. A large amount available at Toledo and Detroit affects the Columbus trade. Utilities and railroads are taking a fair tonnage. Others are buying for usual requirements without any thought of accumulating stocks.

Contracting is not brisk, although April 1 is near at hand. Quotations on new agreements usually are lower than contract prices of last year. Railroad fuel contracts will come up soon although many run until later in the season.

Co-operative mining is the principal agent of production in all parts of the field. Larger operators have closed down until conditions improve.

With retailers using up stocks which they already had on hand because of the mild weather, and the industry in many instances operating half time or less, the demand for coal throughout eastern Ohio continues to wane. It is reliably reported that many mines in eastern Ohio will close around April 1, because of expiring contracts and inability to compete successfully with non-union mined coal from districts to the south. Production in the eastern Ohio No. 8 field in the week ended March 7 was only 227,000 tons, or about 32 per cent of estimated potential capacity.

The grave situation in the union fields has sharpened interest in the meeting of operators in Cleveland on March 17 to discuss necessary changes in the so-called Jacksonville agreement and to devise ways and means whereby conditions confronting the unionized bituminous coal sections may be alleviated.

The Pittsburgh market is extremely dull. There is hardly any real open-market demand. Orders for such coal as is bought by consumers who do not have regular arrangements seem to be grabbed by the first operator who gets a line on the business, and at lower prices than what used to be considered the regular market. In no description of coal is there much business being done on fresh negotiations. By the time steam coal and gas coal respectively are divided into slack, mine-run and various sizes of nut there is not enough of any one kind to make much of a market. Operations in the Pittsburgh district seem to be running at around 35 per cent, having had a brief bulge to 50 per cent around the first of the year.

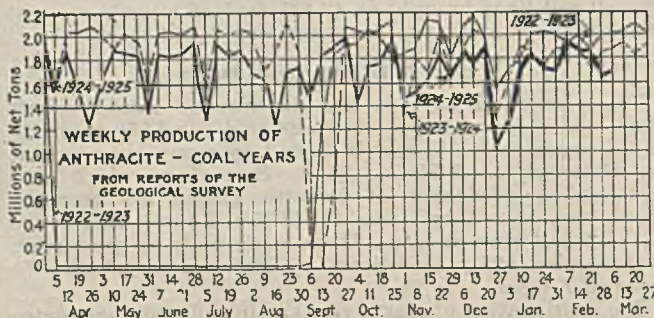
The coal situation at Buffalo has not improved; in fact some new elements of difficulty have to be met. There is some bituminous trade and but for the filling of the tracks by one company with consignment coal the situation would be quite encouraging. The severe weather seems to be over and unless production is cut down the surplus will increase to a distressing amount. Some attribute the poor coal trade to the increasing use of byproducts.

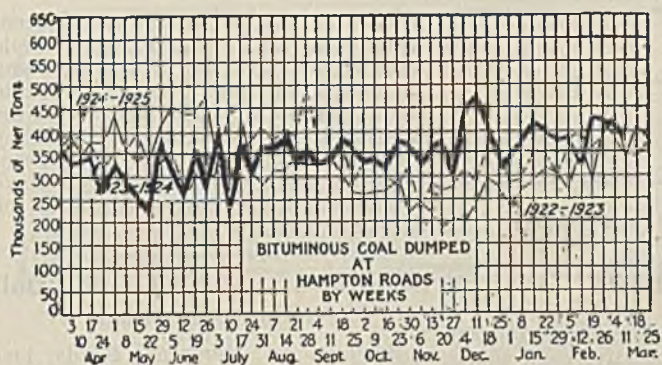
New England Market Disappoints

In New England the market continues its disappointing course. There is nothing even approaching a stable demand, and prices are anything but firm in consequence. The few adventurous spirits who are still trying to merchandise cargoes for distribution inland over railroad wharves are having a hard time to dispose of their wares. The range of price on cars, Boston, is \$5.45@\$5.75, with ultra conservative factors with facilities of their own "asking" \$5.75@\$6. In some ways the outlook is as discouraging as at any time since September.

Two or three instances of contract business, recently show the state of the smokeless market. One 50,000-ton block is said to have been placed at \$5.23 alongside Providence, at a berth where only moderate draft barges can be used. There are spot sales of slack and nut-and-slack at prices well below \$5 alongside, Boston, in small steamers. At Hampton Roads there is less coal on hand and en route but more than a few of the Pocahontas and New River interests are paying heavy charges for car service. There are perhaps three or four large shippers who are holding spot mine run for \$4.50 per gross ton, f.o.b. vessel, but a greater number are striving to move current output at any figure that exceeds \$4.20. As a further indication it is said that Pocahontas screened lump is being sent to the piers for New England distribution, the first quotation being \$6.25 per gross ton on cars, Boston. Apparently the operator is not so confident the \$2.50 price will hold for Western deliveries of screened coal.

On Pennsylvania coals there is no news. Both all-rail and by water only a minimum tonnage is being moved and prices are no better.





Interest Lacking in New York Market

At New York buyers are showing but little interest in the soft-coal market. Industrial purchasing is slow with no prospects of immediate improvement. Present production is strong enough to take care of demand.

Railroad fuel for the new coal year is one of the principal topics now. Only three or four of the companies have closed contracts and it is known that some of the others are willing to wait until the miners' leaders decide what they will do toward modifying the Jacksonville agreement. Upon the tonnage required by the railroads will depend largely the tonnage of slack that the operators can agree to furnish the cement manufacturers on contract and the prices to be fixed. Just now some producers are considering offering to industrial consumers on contract pools 9 and 71 on a basis of \$2.25.

There is not much activity either along the line or at tidewater. The daily average is about 2,000 cars at the local piers, but most of this tonnage is on contract or consignment.

The trade at Philadelphia is lifeless, with the production falling, as consumers are buying only for current consumption. Prices are weak and there have been some recessions in spot prices. The ability of the buyer to get low-priced coals has done much to weaken his decision to buy under contract and has affected contract prices, for some high grade union-mined coal is known to be offered on contract at \$2.

Gas slack is the only grade of which there is not sufficient to meet the demand, and its scarcity has increased with the decline in screened coal for domestic use. At the piers there is no change in demand, the only trade for the past ten days being for bunkers and that very light.

The soft-coal business at Baltimore is on a most unsatisfactory basis. Demand is exceptionally light, and there is practically no buying ahead. The spot market shows keen competition, and there are numerous offerings considerably below the accepted market standing. Under such conditions, the margin of profits, where any profits exist, are inconsequential. The one ray of sunshine is the continued trend of shipping to coal from oil, the change by the U. S. Shipping Board having been followed by several private owners. The export market is at a standstill, and there is not likely to be any great resumption while European coals are available at very low prices.

Steam-coal buying is still fairly good at Birmingham. Commercial and industrial demand is moderately active, spot orders are satisfactory in the aggregate, but sales are not quite as heavy as for several weeks past. A heavy tonnage is moving on contracts with railroads and industrial plants, cotton factories, etc. The Southern Ry. is taking a maximum tonnage at present and other lines have increased their weekly quotas to some extent. The bunker trade is not quite as active as it was a short time back, but demand is still more satisfactory than in previous years. There is an increase in the number of vessels calling at Southern ports and requirements for bunker fuel are correspondingly heavier.

The domestic trade appears to have taken on a spell of sleeping sickness, due to springlike temperatures. There is very little domestic coal moving from the mines, and producers are having to crush their lump and apply it on steam orders to prevent a heavy accumulation of "no-bill" cars. From present indication when spring prices are announced contracting will not be very spirited due to the fact that the retail trade has gone through a very disappointing

winter season and numerous dealers will carry over stocks into the new year.

There is no change in quotations. Steam prices are firm and high-grade domestics are holding to the schedule where applied on orders of this class.

Hard-Coal Demand Awaits New Prices

Lack of demand for anthracite continues at New York. Interest centers in the announcement to be made by the companies about April 1 regarding prices in force after that date. So far nothing has been made known, but many rumors are current. Conferences continue to be held regarding the changing of certain sizes and the possible elimination of one or two.

Receipts have not been so heavy as they were a few weeks ago because of the cut in production, many mines being idle entirely or only working part time.

Neither consumers nor dealers show any desire to fill their bins prior to April 1, after which it is expected that business will be much brisker and may possibly continue to be active throughout the summer months, as the working agreement with the miners expires Aug. 31.

Prices for independent domestic coals show no change from last week. The steam sizes move slowly.

Unseasonably warm weather at Philadelphia has caused the market to go almost to pieces. Most retailers have held their orders with the operators and the mines are working on short time. Among the larger producers the tendency is to keep on mining all sizes and store the surplus. Independent prices are even lower than a week ago, but even so very little coal is moving. It is not at all certain that the companies will reduce on April 1, but the rank and file in the trade now believe that they will.

Consumers do not seem to be troubled about a strike threat in September, the fact that coal is very cheap now having discounted the danger.

There is considerable agitation about the operators changing the sizes beginning April 1. Steam sizes are moving very slowly, with the storage yards getting much overflow.

It has been a long time since Baltimore hard coal dealers have faced such a flat a period as at present. The first week of March brought a sharp cold spell and there was some spasmodic buying, but it was brief. Except for a few late calls, the public here is not likely to do any extensive buying of hard coal, at least until the question of a spring cut in price is decided.

At Buffalo the anthracite trade is small now, as many are falling back on gas for fuel. The demand for coke is light and it will not pick up now. It is regretted that the recent demonstration of steam sizes of hard coal was not more of a success. There is merit in the move, all things considered. The loading of anthracite for lake shipment is under way and promises to be brisk soon.

Coke Market Weak at Connellsville

The tussle between Connellsville coke operators and blast furnaces over the price of second-quarter coke has ended by the furnacemen getting their terms, which were that the coke was not to cost them over \$3.50, wages or no wages. A wage reduction was announced to go into effect March 16. This is from the Frick scale of Aug. 23, 1922 (which the Frick company will continue to pay), to the scale of Nov. 10, 1917, which was paid from May or June of last year up to Dec. 16 and Jan. 1 in the case of a few operators, while some or all of the operators in the high-sulphur district did not make the advance. The one scale is about 30 per cent below the other, so the advance was between 40 and 50 per cent.

The spot market remains quotable at \$3.75, weak and subject to shading, on furnace coke and \$4.25 to \$4.75 on foundry coke.

Car Loadings, Surpluses and Shortages

	Cars Loaded		Surplus Cars		Car Shortage	
	All Cars	Coal Car	All Cars	Coal Cars		
Week ended Feb. 28, 1925.....	862,910	150,629	285,015	138,425
Previous week.....	925,295	165,359	256,230	113,302
Week ended March 1, 1924.....	944,514	186,453	134,273	56,618	3,991	2,475

Foreign Market And Export News

British Market Dull; Contracts Scarce; Shipments Delayed by Storms

The South Wales market shows no improvement, the outlook having become so uncertain that several pits that had been kept going in the hope of an early improvement have closed down. Several other pits are operating for only two or three days a week, and it is feared that these too will close. Undoubtedly many more would not now be working but for the fact that to keep them in condition during shut-downs is too expensive. The lack of business is due to the high working costs, which mean that Wales is in a very unfavorable position to compete with North English and German coals. Another factor is that the operators in many cases are far behind their delivery schedules, on account of the non-arrival of shipping due to the stormy weather.

There are no inquiries worth reporting except the Egyptian State Rail-

ways' request for tenders for 150,000 metrical tons of locomotive coal, which have to be in this month. This coal is for delivery during May, June and July.

The only improvement in the north of England market is an improved inquiry for Durham coking coals. Steam coals are in very poor condition and operators find it difficult to hold to their present prices. There are few contracts of any significance, though several lots of 10,000 tons and less have been sold to European gas works and electric generating stations. The Aalborg Cement Works has invited tenders for 15,000 tons from May to July, or 40,000 tons from May to December.

In the week ended Feb. 28, a cable to *Coal Age* states, British collieries produced 5,271,000 tons of coal, according to official reports. This compares with an output of 5,357,000 tons in the preceding week.

French and Belgian Markets Suffer from Dullness

In the French coal market industrial and house coals remain quiet. The Nord and Pas-de-Calais collieries have decided to await a more favorable opportunity to change prices. In the Loire field, where foreign competition in coal is less felt, the collieries have decided to raise prices an average of 3 fr. per ton. This greatly increased demand for a while, so that it was necessary to resort to stock piles.

In the Sarre the increase in prices will be approximately 5 fr. per ton for the outlying regions and about 3 fr. for the Paris area, but the application of the French inland railway rates on Sarre coal will lower delivered prices about 2.50 fr. per ton. The collieries of Lorraine probably will raise prices to the same extent. The Rouen-Paris freight rate is 13 fr.

Deliveries of indemnity fuel in the first fourteen days of February from

the Ruhr to France and Luxemburg totaled 302,700 tons, including 116,500 tons of coal, 166,600 tons of coke, and 19,600 tons of lignite briquets. During the first twenty-four days of February the O.R.C.A. received from the Ruhr 255,504 tons of coke, or a daily average of 10,600 tons.

Output of coal and lignite in France in 1924 was 44,954,567 tons, as against 38,485,912 tons in 1923 and 40,932,000 tons in 1913. The Lorraine output of 5,269,132 tons is included in the above figure; consequently the pre-war territory produced 39,685,437 tons, or 1,237,565 tons less than pre-war output.

Production of coke in 1924 totaled: 2,627,464 tons, as against 1,985,737 tons in 1923 and approximately of 2,650,000 tons in 1913.

Patent-fuel production in 1924 was 3,222,201 tons, as against 3,076,371 tons in 1923.

Week by week, the position of the Belgian market becomes more and more critical. Demand is much below

production, and but for the recent strike scare in the Sarre stocks would now be even heavier. As it is, many Belgian mines have been compelled to close for one day weekly because of the competition from foreign coal. They have also discharged their foreign employees. The Belgian coal stocks have reached the unprecedented total of 2,000,000 tons.

All Branches of Coal Trade Dull At Hampton Roads

Business at Hampton Roads last week continued dull, with movement of coal in all directions at a low ebb. Many shippers declared the general let-down in movement was the most pronounced in several years.

Little new business was reported and there were few inquiries. Foreign movement was slack, and made up of fulfillment of old contracts, some of which dated back to last April. Coastwise and bunker trade was duller than usual, mines were reported not operating in some fields, and activity at the piers, except at the Chesapeake & Ohio, was considerably below normal.

Export Clearances, Week Ended March 12, 1925

FROM HAMPTON ROADS		Tons
For Italy...		2,309
Ital. Str. Georgia, for Trieste.....		1,750
For Bermuda:		
American schooner Charles H. McDowell for St. Georges.....		7,009
For Brazil:		
Jap. Str. China Maru, for Rio de Janeiro..		4,034
For Porto Rico:		
Amer. Str. Montoso, for San Juan.....		11,892
For Canal Zone:		
Amer. Str. Achilles, for Cristobal.....		

Hampton Roads Pier Situation

N. & W. Piers, Lamberts Pt.:		March 5	March 12
Cars on hand.....		2,272	1,875
Tons on hand.....		133,507	117,093
Tons dumped for week.....		139,779	155,803
Tonnage waiting.....		20,000	15,000
Virginian Piers, Sewalls Pt.:			
Cars on hand.....		1,991	2,022
Tons on hand.....		132,500	131,400
Tons dumped for week.....		82,296	74,545
Tonnage waiting.....		1,655	5,214
C. & O. Piers, Newport News:			
Cars on hand.....		2,684	2,301
Tons on hand.....		123,090	111,810
Tons dumped for week.....		136,704	115,586
Tonnage waiting.....		4,125	13,150

Pier and Bunker Prices, Gross Tons

		March 7	March 14†
Pool 9, New York....	\$4.60@4.90	\$4.60@4.90	
Pool 10, New York....	4.45@4.65	4.45@4.65	
Pool 11, New York....	4.25@4.50	4.25@4.50	
Pool 9, Philadelphia..	4.70@4.95	4.65@4.90	
Pool 10, Philadelphia..	4.35@4.60	4.30@4.55	
Pool 11, Philadelphia..	4.25@4.45	4.25@4.45	
Pool 1, Hamp. Roads.	4.15	4.15	
Pool 2, Hamp. Roads.	4.05	4.00	
Pools 5-6-7, Hamp. Rds.	3.90	3.90	

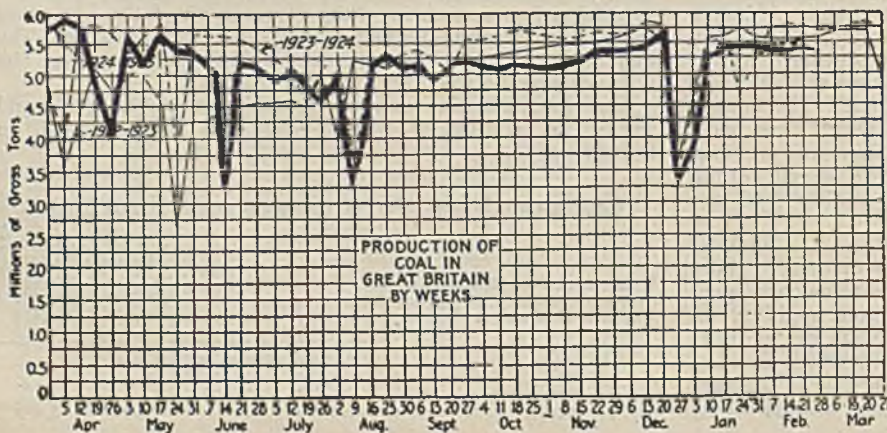
BUNKERS

Pool 9, New York....	\$4.85@5.15	\$4.85@5.15	
Pool 10, New York....	4.70@4.90	4.70@4.90	
Pool 11, New York....	4.50@4.75	4.50@4.75	
Pool 9, Philadelphia..	4.85@5.15	4.80@5.10	
Pool 10, Philadelphia..	4.60@4.80	4.60@4.75	
Pool 11, Philadelphia..	4.45@4.65	4.45@4.65	
Pool 1, Hamp. Roads.	4.20	4.25	
Pool 2, Hamp. Roads.	4.10	4.10	
Pools 5-6-7, Hamp. Rds.	4.00	4.00	

Current Quotations British Coal f.o.b. Port, Gross Tons

Quotations by Cable to <i>Coal Age</i>		
	March 7	March 14†
Cardiff:		
Admiralty, large....	26s@27s.	27s.
Steam smalls.....	15s.6d.	15s.6d.
Newcastle:		
Best steams.....	18s.6d.	18s.6d.@21s.
Best gas.....	21s.	20s.@21s.
Best Bunkers.....	17s.3d.	18s.6d.

† Advances over previous week shown in heavy type, declines in *italics*.





News Items From Field and Trade

ALABAMA

The Aldrich mine, of the defunct Montevallo Coal Co., has been sold to D. A. Thomas and associates for \$500,000 through the federal bankruptcy court and the new owners are now operating the mine at full capacity. The Montevallo Coal Co. went into bankruptcy in January, 1922, and David Roberts, Jr., was appointed trustee. The mine operated until August, 1922, when it was forced to close down. In November, 1923, Mr. Thomas and his associate, W. H. Weller, Jr., obtained a lease on the property for sixteen months. In the meantime they obtained an option on the mine. This mine is now turning out 500 tons of coal daily, and is working with free and convict labor.

It is reported that the Semet-Solvay Co. has definitely decided to make extensive developments on its coal properties in Tuscaloosa County and has completed engineering plans to sink shafts, construct tipples, washeries and other plant facilities, stores and villages essential to the production of coal on a large scale. The company's Ensley plant battery of 240 ovens is now entirely dependent for coking coal on outside sources and several companies formerly supplying coal have arranged for their own coking facilities. The Republic Iron & Steel Co., which is now having its entire coke supply produced at these ovens, has under construction a byproduct plant of its own, which will eliminate this source of supply. The coal properties of the Semet-Solvay Co. are in the Yolande section of Tuscaloosa County and the coal is of superior coking quality and especially fine for iron making. The company has furnaces and byproduct ovens at Holt, which receive their coal supply from the Kellerman mines of the Central Iron & Coal Co., a subsidiary corporation.

ILLINOIS

The By-Products Coke Corporation for the year ended Dec. 31, 1924, reports a deficit of \$498,222 after interest and depreciation, against a net income of \$559,373 in 1923. Current assets as of the close of the year totaled \$3,809,719 and current liabilities amounted to \$896,740.

The Catlin Coal Corporation, capitalized for \$500,000, has been incorporated at Danville, to take over the properties of the Taylor-English Co., at Catlin. Officers are Clarence Parker, Catlin, sales manager of the Taylor-English Co., president; Claude Johnson, Danville, mine manager for the Sharon Coal Co., secretary-treas-

urer, and Henry T. Witwer, Danville, receiver for the Sharon Coal Co., vice-president; with Ren T. English and Frank W. Tarpenning, both of Danville, as the other two directors. The Taylor-English Co. was incorporated nine years ago, Ben English, William Dolan and Clarence Parker being the heaviest stockholders. Mr. English and Mr. Dolan, in disposing of their interests in the Taylor-English Co., will devote all their time to the Chicago Collieries Co. operations in the strip mine west of Danville. The present plans call for a stock issue of \$275,000, and it is planned to develop the Catlin properties to the fullest extent.

Sentiment among the operators of the 5th and 9th Districts Association is against participation in the proposed labor conference of operators still scheduled for March 17 in Cleveland. The directors of the association on March 9 decided in St. Louis not to send any accredited representatives.

The Consol Power Co., organized as a public utility to sell power from the generating station of the Consolidated Coal Co. of St. Louis began on March 3 serving the town of Staunton. The line to the town was built months ago but other public utility opposition was only recently overcome so that the first Illinois coal company to enter the power business is now definitely in. Other towns may be included in Consol service later.

Coal tonnage out of Williamson County dropped 40 per cent in February as compared with January, the C. B. & Q. Railroad announced. Shut-downs are more numerous now, including Old Ben No. 18 at Johnson City.

The Spoon River Colliery Co., Rock Island will reopen and operate the Spoon River coal mine, near Lewistown, Fulton County, and will give employment to 100 men.

The new Bell Building, in Chicago, owned by H. E. Bell, of the Bell & Zoller Coal Co., has been completed and tenants are now moving in. Several coal companies, including Bell & Zoller, the Saline County Coal Corp., and C. M. Moderwell & Co. have taken offices. This building is on Michigan Ave. and is 18 stories high.

INDIANA

Sidney Smith, of the Clinton field, has been chosen to succeed Dave Jones on the board of District No. 11, United Mine Workers. Jones recently resigned after being accused of tampering with the returns on the vote in the district election.

J. Bruce Orr, of Pittsburgh, Pa., president of the reorganized Vandalia

Coal Co., one of the largest and oldest coal concerns in Indiana, arrived in Terre Haute March 5 to complete his preliminary survey of the company's workings, preparatory to what is believed to be a revival of the coal company's business. The Union Trust Co. of Pittsburgh, it is said, holds a first mortgage on the Vandalia Coal Co. which exceeds \$2,000,000.

Prosperity of the miners in the Linton field has reached such an extent that for the first time in 20 years the Vandalia R.R. train did not run out of Linton to the mines on March 2. So many of the miners now own their own automobiles while others ride auto buses that the train has been temporarily discontinued.

KANSAS

The French Coal Co., Pittsburg, which is preparing to open a shovel mine near Scammon, has purchased a steam shovel from the Montrose Coal Co. and is shipping it from Montrose, Mo., to Scammon, A. H. French, head of the company, stated on March 5. It is now planned to get the mine into operation by April 1.

The Reliance Coal Co. of Pittsburg, has purchased a new combination steam shovel, dragline and loader, J. A. Gibson, president of the company, announced on March 5. It will be used in opening up a new piece of land at mine No. 1, on the Kansas-Missouri line six miles northeast of Pittsburg. Most of the coal on the Kansas side has been stripped and the old stripping shovel is being moved over on the Missouri side. The new shovel will be used on the bank to move back the spoil. Mr. Gibson also announced that the Reliance company has acquired through purchases, leases and options a large tract of coal land near Radley, in the northern part of Crawford County, where test holes have proved the coal to be of a uniformly good quality. This land has been acquired to provide a place for future operations when the coal is all removed from the property the Reliance is now operating, Mr. Gibson said, and not with any thought of developing it immediately.

That the coal supply in the Kansas state penitentiary mines at Lansing may be exhausted during the present generation was asserted to the state Senate Committee on Penal Institutions when it heard arguments early in March on a bill for the purchase of coal land at Atchison. There are 350 prisoners working in the prison mines now. A. B. Carney, of the state Board of Administration, urged that the coal be conserved for prison use alone, as maintaining the present rate of produc-

tion will exhaust the coal in this generation. The bill offers to sell the state the 5,000-acre property of the Atchison Brick, Tile & Coal Co., for \$150,000. It was once worked but was shut down by labor trouble. Company representatives propose that the state could make a success of operating it by establishing a branch of the state penitentiary at Atchison.

KENTUCKY

A. F. Parsons and associates of Huntington, W. Va., have purchased the mining plants of the Nagola-Elkhorn Coal Co. at Whitaker and Parsons, in the Elkhorn coal fields of Letcher County. The property will be taken over at once. The deal has been pending for some time. While the consideration is reported to have been large, it has not been made public. It is said some improvements will be made in both plants. Mr. Parsons installed the latter plant eight years ago, selling it to the Nagola-Elkhorn company.

A rather bad state of affairs in Perry County has been exposed in a trial before Governor W. J. Fields, at Frankfort, of Sheriff Tolbert Holliday, against whom ouster proceedings were pending and whom Governor Fields has announced he will remove from office. The case will be appealed by Holliday. It was testified that the Sheriff drew money from coal corporations regularly, probably in order that they might obtain protection to which they were entitled without any such payments. The Sheriff and deputies are alleged to have run the town like wild West gunmen.

OHIO

Lee Hall, Ohio president of the United Mine Workers, in a speech at the convention of the Fifth sub-district of that organization asserted that mining conditions in Ohio were deplorable, due to discriminating freight rates and underselling by non-union fields of West Virginia and Kentucky. In the southern Ohio field the treasury of the Mine Workers has spent \$200,000 alone for food for starving miners and their families. He approved of a plan to send organizers among the non-union fields of West Virginia.

Harry Jump, who has been in charge of the branch office of the Walter Bledsoe Co. in Cincinnati for some time has resigned. He is interested in mines in the Elkhorn district but has not announced what he will do now.

Frank B. Stewart, president of the Winifrede Coal Co., left Cincinnati March 3 for Philadelphia for a conference with the principal stockholders of the company. Most of the mines are now shut down.

E. F. McClure recently brought suit against the Alma-Thacker Fuel Co., which has offices in the Huntington Bank Bldg., Columbus, for receivers on the claim that the company's assets were being dissipated. Federal court named R. W. Laylin, vice-president of the City National Bank, Columbus, and Glenn C. Deaton, of McCoy, Ky., the receivers. The plaintiff formerly was manager of stores of the company and

claims a debt of \$5,900 as back salary. The company's mines, which are located in Kentucky, near the West Virginia line, have been idle for some time.

"Black Diamond," the mine-rescue car maintained by the State of Ohio, and under the supervision of the Department of Industrial Relations, has been placed in the railroad shops for repairs. As soon as the car can be overhauled and refinished it will start on a tour of eastern Ohio, with a crew of competent first-aid instructors, who are members of the mining division of the industrial relations department. First-aid education will be given miners and workers of allied industries in southern Ohio by representatives of the U. S. Bureau of Mines, commencing April 1, when the government mine rescue car will be returned to Ohio.

J. H. Briscoe, former president of the Cincinnati Coal Exchange and vice president of the Darby Coal Sales Co., is back on the job after having been ill for over three months.

All bids opened Feb. 25 by the Columbus Board of Purchase for furnishing 10,000 tons of nut, pea and slack coal to the municipal electric light plant and 3,500 tons of the same kind of coal to the garbage disposal plant were rejected. Bidders submitted figures on both Hocking and West Virginia coal. W. S. Harmon Coal Co., Columbus, was low on Hocking coal with a bid of \$1.23, followed by the W. J. Hamilton Coal Co., Columbus, \$1.38. The Hamilton company was low on Virginia coal at 89c. and the Logan & Kanawha Coal Co., of Cincinnati, following at 95c. All bids were f.o.b. mines.

Frank and Ed Holyoke, who represented the Wyoming Coal Sales Co. and maintained an office for this selling organization on the Cincinnati market for several years, were in New York the week of March 2, conferring with the Cory Mann George Co., their new employer. It is proposed to liquidate the Wyoming Coal Sales Co., the Cory Mann George Co. having purchased most of the mines that the selling com-

pany formerly served. A branch of the New York concern will be established in Cincinnati.

PENNSYLVANIA

The Pittsburgh Coal Co. reports for 1924 net earnings of \$281,887 after charges, but before payment of dividends. After payment of dividends there was a deficit of \$2,783,189. The company for 1923 reported net earnings equal to \$10.82 a share on the common stock. The company's balance sheet shows cash of \$6,075,448, accounts and bills receivable of \$7,055,710, inventories of \$8,098,133, bills payable of \$527,525 and accounts payable of \$3,289,675.

The Fuel Corporation of America, Stock Exchange Building, Philadelphia, on March 6 recovered a \$62,746 verdict against the Irwin Valley Gas Coal Co. for breach of contract in failing to deliver at the times specified certain large shipments of coal. The verdict was rendered before Judge McDevitt in Common Pleas Court No. 1.

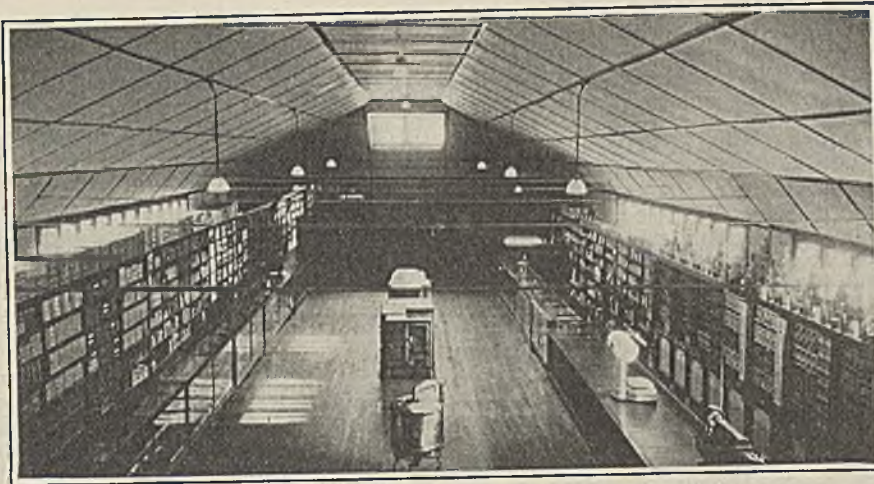
It is reported that the effort to reopen the Florence mine of the Rochester & Pittsburgh Coal & Iron Co. is meeting more opposition on the part of the union miners than was the case with most of the others which have started up lately. The route of the working miners is closely picketed and every effort short of actual force is employed to entice or drive them away, which of course reduces the operating gangs no little as time goes on.

The reorganization of the A. M. Byers Co., Pittsburgh, has been completed through the election of a new directorate, in which the new interests which recently acquired a controlling interest are fully represented. The new board comprises J. D. Lyon, E. M. Byers, J. Frederic Byers, H. A. Brassert, E. L. Ives, H. H. Springford, A. H. Beale, J. H. Hillman, Jr., Ernest Hillman and A. B. Sheets. The officers of the company are E. M. Byers, chairman; A. H. Beale, president; J. Frederic Byers, E. L. Ives and L. M. John-



Semi-Detached Houses at Coalwood, W. Va.

In this group, built for the consolidation Coal Co., are four 6-room houses of brick and half-timbered construction, of distinctly attractive design.



Mr. Ford Has a Good Store for His Employees

At Twin Branch 14 miles from Welch the Fordson Coal Co. has five of its mines and a store. These mines were formerly owned by the Dexcar Pocahontas Coal Co. This store was built for the employees of the Orkney-Warwick Mines of the coal company.

ston, vice-presidents; Frank G. Love, secretary and treasurer, and H. H. Bryant, assistant secretary and treasurer. E. M. and J. F. Byers and J. D. Lyon, who formerly owned all of the stock of this company, still continue as the largest stockholders in the company, and J. F. Byers will continue his activities as vice-president in charge of sales. In the reorganization the company has taken over the Orient Coal & Coke Co., which will give it a full supply of fuel, both coal and coke, for its operations. The Orient plant will continue to be operated by the Hillman organization.

J. F. McGinnis, superintendent for the H. C. Frick Coke Co. at Oliphant Furnace, is now acting as chief clerk at the company's Leisenring No. 2 plant, at West Leisenring.

In the Connellsville coke region coal and coke operations are being more and more curtailed. It is thought by many that wages, increased to the war peak scale about three months ago, will be again reduced by the independents to the Nov. 10, 1917, basis around April 1 in hope of stimulating business by being able to make a lower price on coal and coke. This will be a reduction of about 33½ per cent. The Linn mine of the American Coke & Fuel Corporation went on strike March 5 as a result of a reduction in wages to the above mentioned scale on March 1. The company at once closed down the mine indefinitely. On March 1 the Consolidated Coke Co. reduced wages to the same level and is still operating. The wages at the Sunshine plant of the American Coke & Fuel Corporation were reduced to the same level a couple of weeks ago without any trouble.

M. W. von Bernewitz, having completed his work in connection with the preparation of the Bureau of Mines report on losses in mining coal for the U. S. Coal Commission, has returned to the Pittsburgh experiment station.

The State Workmen's Compensation act of 1915 is the subject of several proposed amendments in the Legislature of 1925, but it is doubtful whether any of them will be approved. Representative Robert E. Haas, Lehigh County, who offered amendments simi-

lar to those of the Joyce bill of 1923, has introduced a new bill. This contains the same provisions as his earlier bill of this session, but clarifies some of the provisions. The maximum payment is \$15 instead of \$12 and the minimum \$7 instead of \$6 a month, while the waiting period is reduced from ten to seven days.

Representative Charles F. Armstrong, of Armstrong County, is the sponsor of a bill to amend section 1 of an act of May 5, 1883, relating to the construction of lateral railroads from mines to public roads and navigable streams. The act itself authorizes the owners or lessees of iron ore or coal mines to construct lateral railroads from the mines to any railroad, public road or navigable stream within the county in which the mines are located, over or under the surface of intervening lands, provided the lateral railroad shall not extend beyond the limit of the county or endanger the safety of any other mine. This is changed so as to add "or endanger the safety of the existing workings of" any other mine.

Members of the Legislature from the anthracite counties of the State have interviewed Governor Pinchot regarding the repeal of the anthracite tax and the filling of vacancies existing among the anthracite mine inspectors. The anthracite county members favor the repeal of the coal tax law, but the Governor told them that its repeal was a matter for the Legislature and not for him to decide. There are four vacancies among the inspectors and the Governor has taken up the question of filling these with Joseph J. Walsh, Secretary of Mines. The anthracite members expressed the belief that there should be more inspectors provided for. Here again the Governor said this was a matter for the Legislature and of revenues.

UTAH

Attorney General Harvey H. Cluff is urging the Legislature to order an investigation of the methods of the big coal operators and dealers of the state on the ground that there is evidence

that they are trying to force out of business, by unfair methods, the several mutual companies in order to control prices on coal all the way to the consumer. In the resolution which he offered, he asserted, without mentioning names, that the efforts of Representative Stark to have a thorough investigation made of the alleged boost which the State Securities Commission gave the Great Western Coal Mines Co. not long since was inspired by the coal companies and is part of their scheme to defeat the mutuals. Promoters of the Great Western concern are to stand trial in March for alleged use of the mails to defraud, following indictment by a federal grand jury.

The Consumers' Mutual Coal Co., of Salt Lake City, took over 220 acres of coal lands adjoining their 1,480 acres of leased property in the Gordon Creek fields during last week in February. It is estimated that these lands contain 72,000,000 tons of coal.

The Utah mines produced 595,189 tons of coal during January, which is the biggest January in the state's history. Production was 529,575 tons during the same month last year. The previous high point was reached in January, 1920, when 589,668 tons was mined.

VIRGINIA

The Newport News Shipbuilding & Drydock Co., which formerly contracted for its coal on a yearly basis, has announced that in the future it will contract monthly. The Raleigh Smokeless Coal Co. has been awarded the first month's contract for 2,000 tons each of mine-run, nut and slack. The figure was not made public.

WEST VIRGINIA

The New River & Pocahontas Consolidated Co. is to take over the Kay Moor Mines of the Low Moor Iron Co. and make extensive improvements. About 100 new houses will be built. The holdings cover about 3,000 acres in fee and 2,000 acres under lease from the Coal Run Land Co. Output now is about 200,000 tons a year.

Judge M. H. Woods, before leaving the bench in the Eastern Panhandle circuit of West Virginia to enter upon the practice of law in Charleston, W. Va., directed the dismissal of the indictments against more than 300 miners charged with having participated in the march on Logan County in 1921. The case was originally instituted in Logan County but was transferred to Jefferson County for trial.

A voluntary petition in bankruptcy has been filed by the Man Mining Co., giving total liabilities as \$245,482.43 and total assets as \$137,991.93. The Man Company operates at Man, in Logan county. The petition was filed by J. C. Miller, Jr., president of the company, who had been directed to take such action at a recent meeting of the board of directors.

Although other companies have curtailed operations the mines of the Kanawha & Hocking Co. at Longacre,

Harewood and Marting, which resumed operations not long ago on a non-union basis, are almost at normal capacity. It is stated that the 200 houses of the company from which union miners were evicted are now filled with workers from other operations. The strikers are living in tents and barracks and are supported by the union and still refuse to work, but are not interfering with the men who have taken their old places in the mines.

John R. Fraser, chief electrician of Mine No. 2 of the Elm Grove Mining Co., Elm Grove, has been promoted to assistant superintendent of the company's Mines Nos. 1, 2 and 3.

Work will be started immediately on the construction of a new steel tipple and the installation of new loading equipment at the Island Creek Coal Co.'s terminal in Huntington, which is to cost \$250,000. The contract for the work has been let to Hey & Patterson, Inc., of Pittsburgh. Major Harry M. Trippe, in charge of the Huntington district of U. S. Engineers, received official notice from Washington, D. C., last week that the application of the company for a permit to build a new tipple over the Ohio River, had been granted by the War Department. The improvements include the construction of an all steel tipple, with a conveyor belt adjustable to high and low water, and a new rocker dump on the railroad which will dump the coal cars by machinery. The improvements proposed will enable the company to load 800 tons of coal per hour onto river barges from the railroad, A. R. Beisel, general manager of the company, says.

John J. Sweeney has resigned his position as chief engineer of the Central Pocahontas Coal Co. and the Crystal Block Coal & Coke Co., of Welch, to join the firm of Heyl & Patterson, Pittsburgh, Pa.

Preparatory to operating the Wendel plant of the Maryland Coal Co. of West Virginia, in Taylor County, on a non-union basis from forty to fifty miners heretofore employed in the Buckhannon and Adrian fields have reported to the management. They are all non-union men. In order to avert the possibility of a clash between the forces of union miners on strike against a reduction in wages and who are picketing the roads leading to Wendel, and the non-union men reporting, a detachment of state police has been assigned to duty at Wendel.

The Blocky Pittsburgh Coal Co., with a mine at Galloway Junction, is attempting to operate on a non-union basis, there having been trouble between the company and union miners over a checkweighman which the miners insisted on having appointed.

Sales of Harrison-Barbour Coal Co. holdings in Harrison and Barbour Counties, including 1,800 acres of Pittsburgh and 800 acres of Redstone coal, by special commissioners, for \$89,000 constitutes one of the most important deals in central West Virginia in recent months. The property is estimated to be worth about \$300,000 under favorable market conditions, as that was the

value placed on it when the property was first decreed for sale in 1922. The sale made grows out of litigation started in 1916, the property being involved in the failure of two Fairmont banks. The first time the property was sold it brought \$71,000. When that sale was set aside and the property again placed on the auction block, it was bid in at \$61,000. That sale also was set aside and the property finally sold to Harry S. Sands, of Wheeling, and others associated with him.

In completing the reorganization of the West Virginia Coal Co., the following officers have been elected: C. E. Hutchinson, Fairmont, president; B. S. Hutchinson, Fairmont, vice-president; A. H. Crane, of New York, secretary-treasurer. On the board of directors are E. E. Loomis, president of the Lehigh Valley R.R., chairman of the board; E. O. Kenna, capitalist, New York; Everett Drennen, of New York and Elkins, former president of the West Virginia Coal & Coke Co.; S. A. Welden, vice-president National City Bank of New York; Bruce Baird, Washington, D. C.; J. L. Kemmemer, president Whitney-Kemmemer Coal Co., New York City; S. B. Thorne, president Thorne-Neale Co., New York; C. E. Hutchinson, former president Logan Mining Co., Fairmont; Brooks S. Hutchinson, former president of the Rich Creek and Empire Coal companies, Fairmont; M. L. Hutchinson, president Hutchinson Coal Co., Fairmont; G. C. Arnold, Buckhannon; John T. Davis, New York City. The main offices of the company will be located at Fairmont but offices also will be maintained in New York City, Philadelphia, Cleveland, Cincinnati, Indianapolis, Elkins and other cities.

WASHINGTON, D. C.

President Hutchinson of the National Coal Association, has announced the appointment of Thomas G. Fear, general superintendent of the Inland Collieries Co., Indianola, Pa., as a member of a sectional committee of the American Engineering Standards Committee on "Proposed American Standards in Rock Dusting of Coal Mines." The American Institute of Mining and Metallurgical Engineers is sponsor for this particular standardization effort. The appointment of William Emery, Jr., resident engineer of Madeira, Hill & Co., Philadelphia, as a member of a sectional committee on "Outside Coal Handling Equipment," also has been announced by Mr. Hutchinson. This sectional committee is sponsored by the American Mining Congress, under the American Engineering Standards Committee.

CANADA

Charged with fraud and false pretences in connection with the sale of coal to the Dominion Government for use in the military barracks at Winnipeg, Man., G. B. Aldous and Fred De Siewes, officials of the Canadian Coal Sales Co., and George Edwards, chief fireman of the Tuxedo Barracks, together with Sergeant C. J. Simpson, were arrested a few days ago and are

now out on bail. A royal commission recently inquired into the sales.

There is no anthracite in the Sheep River or Smoky River areas, according to a report by James McAvoy, mining engineer and geologist, of Toronto, who was engaged by the Dominion Fuel Board to investigate. The Sheep River and Smoky River were the coal areas affected by the Hoppe leases cancelled a couple of years ago after considerable controversy, and inquiries by special committees and parliamentary debate.

Since the Dominion government in September last provided \$200,000 to assist the transportation of Canadian coal to central Canada, the Dominion Fuel Board has approved the shipment of 150,000 tons of coal from New Brunswick and Nova Scotia, on which the government's liability to the railroads would be \$36,000. The principal shipments from the Maritime Provinces were as follows: 10,500 tons to Hawkesbury, Ont.; 25,000 tons to Hull, Que.; 13,000 tons to Ottawa; 3,000 tons to Cornwall, Ont.; 32,000 tons to La Tuque, Que., and 13,500 tons to Sherbrooke, Que.

In spite of the seven and one-half months' strike in the province, Alberta's coal production in 1924 amounted to 5,203,713 tons according to figures issued on Feb. 2 by the Department of Mines. This total was made up of a domestic output of 3,096,660 tons, a sub-bituminous yield of 591,946 tons and a bituminous yield of 1,515,107 tons. The greatest output in any one year from Alberta was in 1920, when 6,907,000 tons was produced. November of last year provided a record output for any single month among the domestic mines, a total of 603,637 tons being mined.

Traffic

New Short-Haul Rates in Effect In West Virginia

In Clarksburg, Fairmont and nearby cities new short-haul coal freight rates became effective on March 6 according to an order issued by the Public Service Commission of West Virginia. The short-haul case is still pending decision in the West Virginia Supreme Court on an appeal taken by the railroads from the first order of the Public Service Commission. The commission several times postponed the date on which the reduction in rates was to become effective but finally put it into effect on March 6. Charges as fixed by the commission are 42c. for switching in Clarksburg and 55c. for shipping between points in what is known as the first zone. The reduction is from 64c. a ton and amounts to a saving of \$11 on each car of coal shipped between points in the two zones. There are 100 mines in the first zone, outside of Clarksburg. The zone is bounded on the east by Oral and Wolf Summit; on the north by the Clauson mine of the Lambert Run Coal Co. and on the south by the Carper mine of the Fort Clark Coal Co.

New Companies

The Clean Coal Co. of Gravity, Iowa, has been incorporated with a capital of \$10,000 to operate a coal mine, also to conduct a wholesale and retail coal business. Hal Lyon is the president and C. E. Ledgerwood is the secretary. This company is now operating its new mine and is bringing up a steady amount of coal, the output Feb. 25 having been fifty-three tons.

Recent Patents

Safety Mine Elevator; 1,510,411. Charles J. Mollanen, Hancock, Mich. Sept. 30, 1924. Filed Jan. 17, 1924; serial No. 686,910.

Mining Machine; 1,514,048. Morris P. Holmes, Claremont, N. H., assignor to the Sullivan Machinery Co., Chicago, Ill. Nov. 4, 1924. Filed April 2, 1919; serial No. 287,024.

Mechanical Coal and Rock Mining Machine; 1,514,058. Adolf Linnemann, Berlin, Germany. Nov. 4, 1924. Filed July 29, 1924; serial No. 728,927.

Loading Apparatus; 1,514,097. Glenn W. Packer, Chicago, Ill., assignor to Goodman Mfg. Co., Chicago, Ill. Nov. 4, 1924. Filed March 31, 1921; serial No. 457,380.

Mine Jack; 1,514,262. Jacob H. Santmyer, Uniontown, Pa. Nov. 4, 1924. Filed July 6, 1923; serial No. 649,771.

Mining Machine; 1,514,269. H. R. Straight, Adel, Iowa. Nov. 4, 1924. Filed April 11, 1922; serial No. 551,696.

Mineral Separator; 1,514,807. Robert M. Tweedy, Spokane, Wash. Nov. 11, 1924. Filed July 25, 1922; serial No. 577,299.

Coal Drill; 1,515,157. Stanislaw Mikulski, Indianola, Pa. Nov. 11, 1924. Filed July 20, 1920; serial No. 397,633.

Coming Meetings

New England Coal Dealers' Association. Annual meeting, March 25-26, Springfield Auditorium, Springfield, Mass. Secretary, C. R. Elder, 141 Milk St., Boston, Mass.

Upper Potomac Coal Association. Annual meeting April 6, Cumberland, Md. Secretary, J. F. Palmer, Cumberland, Md.

Canadian Retail Coal Association. Annual convention, King Edward Hotel, Toronto, Ont., Can., April 8 and 9. Secretary, Bert A. Caspell, Brantford, Can.

National Retail Coal Merchants Association. Annual convention Traymore Hotel, Atlantic City, N. J., May 11-14. Resident vice president, Joseph E. O'Toole, Transportation Bldg., Washington, D. C.

Mine Inspectors' Institute of America. Annual convention, Jefferson Hotel, Peoria, Ill., May 19 and 20. Secretary, G. B. Butterfield, 179 Allyn St., Hartford, Conn.

Chamber of Commerce of U. S. A. Thirtieth annual meeting, May 20-22, Washington, D. C.

Manufacturers' Division of the American Mining Congress. National exposition of coal-mining equipment, Cincinnati, Ohio, week of May 25. Secretary of American Mining Congress, J. F. Calbreath, Munsey Building, Washington, D. C.

American Wholesale Coal Association. Ninth annual convention, French Lick Springs Hotel, French Lick, Ind., June 1 and 2. Secretary, G. H. Merryweather, 1121 Chicago Temple Bldg., Chicago, Ill.

Mid-West Retail Coal Association. Annual meeting at Kansas City the first half of June. The exact date will be decided upon soon.

National Coal Association. Annual meeting, June 17-19, Edgewater Beach Hotel, Chicago, Ill. Executive Secretary, Harry L. Gandy, Washington, D. C.

American Society for Testing Materials. Twenty-eighth annual meeting, week of June 22, Chalfonte-Haddon Hall, Atlantic City, N. J. Secretary-treasurer, C. L. Warwick, 1315 Spruce St., Philadelphia, Pa.

Chemical Equipment Exposition. June 22-27, Providence, R. I. Association of Chemical Equipment Manufacturers, 1328 Broadway, New York City.

Coal Mining Institute of America. Annual meeting, Dec. 9-11, Pittsburgh, Pa. Secretary, H. D. Mason, Jr., P. O. Box 604, Ebensburg, Pa.

New Equipment

All-Steel Coal Crusher Is Made of Armor Plates

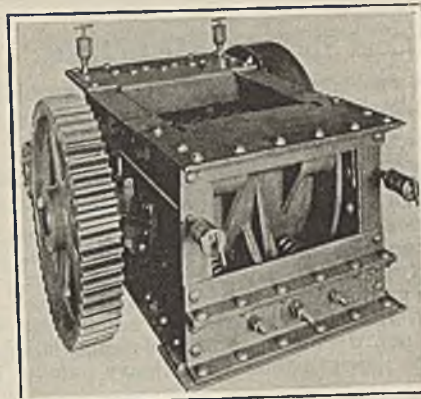
Because of the increased efficiency in other units of the modern power plant, coal-preparation equipment should be developed to such a degree that it will reduce the coal to finer sizes than heretofore and do its work more uniformly and with unfailing reliability.

Manufacturers of the single-roll crusher urge that theirs is the best type for the preparation of coal for use in stokers, pulverized-coal furnaces, gas plants and other places, declaring that it gives not only a finer and more uniform product, but does it also with a simplicity of construction, a low upkeep cost and a dependability not otherwise attainable.

In operation coal is fed to the crusher in any quantity desired. The rotating toothed roll draws the coal into the tapered opening between the roll and breaker plate, quickly reducing it to the desired size and discharging it below to the belt, elevator, or direct to the bunkers. The cross-section illustration indicates clearly the operation of the crusher, as well as the spring relief in case of iron in the feed.

The teeth in passing through the coal on top of the roll rapidly agitate the finer pieces of coal in the feed so that they pass through the crushing zone with a minimum of degradation, which partly accounts for the low percentage of fines produced in this type of crusher. The spring suspension is of such size and adjustment that the springs will not yield for any except uncrushable materials. This accounts for the minimum of oversize.

The side frames of these crushers are constructed of 30-in. I-beams as shown in the accompanying illustration. Cross members of heavy channel and angle plate are hot-riveted to the girder-beam side frames to form the rigid unbreakable unit construction. Electric-steel bearing housings, accurately shouldered into the side frames to take the shear, and hot-riveted in position, are fitted with interchangeable die-cast bearing bushings, and thorough lubrication is provided by steamboat-type grease cups piped to safe locations.



Heavily Constructed Sides and Ends

Proper sizing is accomplished with ease. Cross members of heavy channel and angle plate are hot-riveted to the girder side frames.

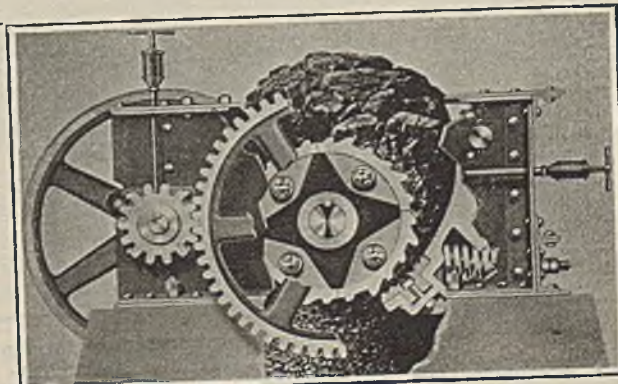
A segmental roll of special patented construction with no bolts through its crushing surface to weaken the segments, affords great strength and provides ready accessibility for changing when necessary.

The frame carries, in addition to the main roll shaft and the countershaft, a pivoted breaker plate which is readily adjustable to and from the crushing roll to vary the size of product as needed. A 1-in. product with little oversize can be supplied for stoker feed or for pulverizers; 6-in. crushing for preparation of coal for hand-fired locomotives is also possible. Any size between these two limits is easily obtained by means of the breaker-plate adjustment.

Supporting the breaker plate are heavy compression springs, designed to yield for the passage of tramp iron or other uncrushable materials, but which will not permit the passing of oversize coal through the choke feeding of the crusher. The special frame operates equally well without feeder and regardless of the quantity of coal in hopper or bin over the roll. Beside the spring suspension of the breaker plate, a special safety device employing an ordinary steel bolt in hardened steel bushings prevents breakdowns in case of large iron in the feed. In normal operation this bolt transmits power

Crushes Coal to Size

Cushioning springs, so set and adjusted that the tramp iron does not wreck the crusher, are properly located in this unit. The crusher will not yield at all to coal but yields readily to iron or steel.



from the flywheel to the yoke which is keyed to the shaft.

Triple protection against tramp iron is thus afforded in this crusher, first with the unbreakable steel frame, second with the relief springs, and third with the positive shear-pin safety device.

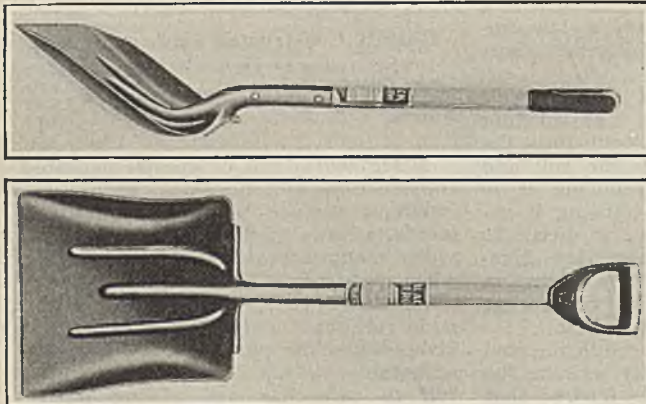
The wearing parts are all in plain sight and can be readily inspected. This accessibility helps to avoid accidents and shutdowns which may result from concealed or inaccessible wearing parts. The crusher is made by the Pennsylvania Crusher Co., Stephen Girard Bldg., Philadelphia.

Coal Shovel Made to Last

A coal shovel with a special lignoid handle has recently been developed by the Union Furnace Manufacturing Co. of Altoona, Pa. These handles are claimed to meet all the requirements for Dee handles in a most satisfactory manner. They are made of a patented composition molded to shape and positively attached to a northern ash stem. The grip is wider and more comfortable than the old style wooden handle. It is claimed that it never feels cold, has more strength than an ordinary handle

This tool carries an 8-in. saw and has a capacity of 2½ in. in wood. The motor is of the universal type and can be run from any standard lamp socket. The handle is fitted with a momentary contact trigger switch which must be held down while the saw is operating. The tool is light and portable, the body being made of aluminum. All shafts run on high-grade ball bearings so that vibration is entirely eliminated.

Saws like these are taking the place of the carpenter's hand saw and besides will do much of the work now being done by the table saw.



Scientifically Made Shovel

The roll at the top of the blade prevents it from twisting. Deep corrugations make possible a rigid light weight blade.

and above all does not deteriorate when exposed to damp atmospheres.

The complete handle consisting of the wooden stem weighs approximately 2 lb. and can be produced with the use of only 8 lb. of timber.

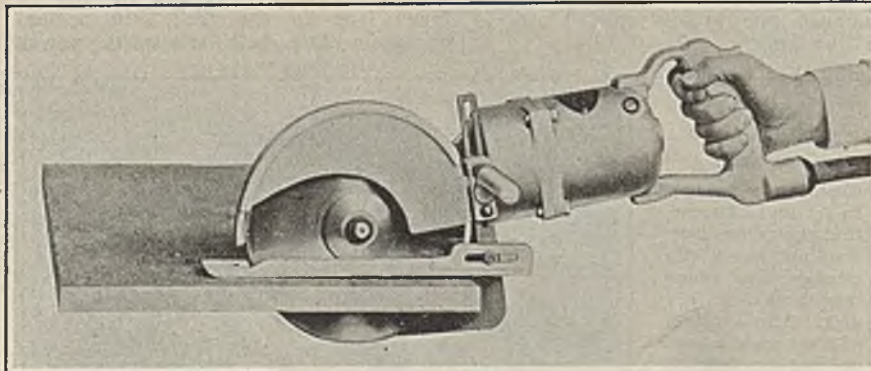
The blade of the shovel is corrugated and light in weight. Special ribs and rolls in the metal make it unusually strong.

Other models are designed for the cutting of various building and insulating materials, such as asbestos, lumber, fiber, bakelite, etc.

Industrial Notes

Paul C. Burton, mechanical designer and inventor of several devices patented for the National Automatic Tool Co., Richmond, Ind., and the Mechanical Engineering Co., of Chicago, recently joined the engineering force of Foote Bros. Gear & Machine Co., of Chicago.

J. P. Filppen with offices at 649 Union Trust Building, Pittsburgh, Pa., has been appointed district representative for the Farrel Foundry & Machine Co., of Buffalo, N. Y., and Ansonia, Conn., and will handle the sales of Sykes herringbone gears and reduction units within the territory covered by western Pennsylvania, eastern Ohio and West Virginia.



Putting Power Into the Palm of the Hand

Speed and accuracy mean lower cost of production. This little motor-driven saw walks through the job. A trigger switch controls the universal-type motor which receives energy from any 110-volt circuit.

Trade Literature

Falk-Bibby Flexible Couplings. The Falk Corporation, Milwaukee, Wis. Bulletin No. 35. Pp. 8; 8½ x 10½ in.; illustrated. Describes the construction, lubrication and flexibility of these couplings. Size and rating when ordering are included.

Super-Strom Ball Bearings. Storm Ball Bearing Mfg. Co., Chicago, Ill. Pp. 15; 4½ x 7½ in.; illustrated. Design, materials, workmanship, load-carrying capacities and dimensions are described.

Trico Fuse Mfg. Co., Milwaukee, Wis. has issued a four-page folder describing and illustrating their renewable fuses, which are made in all sizes up to 1,000 amp., both 250 and 600 volts.

Link-Belt Co., Chicago, Ill. recently published Book No. 546, covering skip hoists and their application. Complete details of operation, capacity, design and construction are given and the book is well illustrated.

Wheeler Evaporators. Wheeler Condenser & Engineering Co., Carteret, N. J. Pp. 32; 8½ x 11 in.; illustrated. The application of evaporators for power plant purposes is described.

Motor Maintenance Equipment. The Martindale Electric Co., 1708 Detroit Ave., Cleveland, Ohio. Catalog No. 6. Pp. 16; 6 x 9 in.; illustrated. Describes commutator slotting and grinding equipment.

Better Foundry Sands. Pittsburgh Testing Laboratory, Pittsburgh, Pa. Bulletin 35. Four-page folder illustrating the apparatus for testing foundry sands and containing description of some of the tests for molding and core sands.

The Poole Engineering & Machine Co., Baltimore, Md., has recently issued the following four-page folders: Bulletin 105, describing its Type H Speed Transformer, and Bulletin 106, describing its Type K Speed Transformer for increasing or decreasing speeds.

Leahy No-Blind Screen. The Deister Concentrator Co., Fort Wayne, Ind. Bulletin No. 12. Pp. 7; 8½ x 11 in.; illustrated. Operation, features and uses of the screen are described.

The Osgood Co., Marlon, Ohio, has issued the following: Bulletin 250, 15 pp., illustrated, describing **Revolving and Railroad Shovels**; circular 251, **Better Roads and Streets with an Osgood**, showing its shovels in various scenes; circular 253, **Power Shovel, Gasoline, Diesel, Electric.**

Investigation of the Performance of Centrifugal Pumps When Pumping Oils. Report by Prof. Robert L. Daugherty, California Institute of Technology, for The Goulds Manufacturing Co., Seneca Falls, N. Y., and the Union Oil Co. of California, to determine the adaptability of centrifugal pumps for handling oil. Bulletin 126. Pp. 25; 8 x 10 in.; illustrated. A number of charts for assistance in determining the performance of centrifugal pumps when handling viscous liquids of any kind are included.

Soot Blowers. Marion Machine Foundry & Supply Co., Marlon, Ind. Catalog No. 50R. Pp. 24; 9 x 11½ in.; illustrated. Describes the different types of soot blowers manufactured by this company.

Uehling Instrument Co., Paterson, N. J., has issued bulletin 118, a four-page folder describing the **Apex CO₂ Recorder**; and bulletin 118-A, a leaflet describing the **Apex Pneumatic CO₂ Meters**.

W. A. Jones Foundry & Machine Co., Chicago, Ill., announces the publication of its General Catalog No. 30, containing 443 pp. of **Power Transmission Machinery** data, including cut gears, cast gears, spur gear speed reducers, inclosed worm gear drives, cast-iron pulleys, friction clutches, sprocket wheels, hangers, pillow blocks, couplings, rope sheaves, etc.

A helpful book which answers a host of questions about **cutter chains** and their operation has just been issued by the Goodman Manufacturing Co., of Chicago. The book, with profuse illustrations of the sort that clearly illustrates, contains a fund of practical points for the practical man about the strength of cutter chains, coring, binding of the bar, arrangement of blocks, power consumption, chain adjustment, lubrication, repairs, bit shapes, bit steels and whatnot. The book, of pocket size and containing about 40 pages, is free to mining men.